126-TRC-15-008

SAFETY COMPLIANCE TESTING FOR FMVSS 126
Electronic Stability Control Systems

Fiat Chrysler Automobiles
2015 Chrysler 200
NHTSA No. C20150303

TRANSPORTATION RESEARCH CENTER INC.
10820 State Route 347
East Liberty, Ohio 43319

November 16, 2015

FINAL REPORT

Prepared Under Contract No.: DTNH22-11-D-00247

U. S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration
Enforcement
Office of Vehicle Safety Compliance
1200 New Jersey Avenue, SE
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Washington, DC 20590

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16. Abstract A test was conducted on a 2015 Chrysler 200, NHTSA No. C20150303, in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-126-03 for the determination of FMVSS 126 compliance. Test failures identified were as follows: None			
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1.0 PURPOSE OF COMPLIANCE TEST

The purpose of this test is to determine if the test vehicle, a MY 2015 Chrysler 200 appears to meet the minimum equipment and performance requirements stated in Federal Motor Vehicle Safety Standard (FMVSS) 126, "Electronic Stability Control Systems."

This standard establishes performance and equipment requirements for Electronic Stability Control (ESC) Systems installed in passenger cars, multipurpose passenger vehicles, trucks, and buses with a gross vehicle weight rating of 4,536 kilograms or less.

2.0 TEST PROCEDURE AND DISCUSSION OF RESULTS

Testing of the MY 2015 Chrysler 200 was conducted at Transportation Research Center Inc. (TRC Inc.) in accordance with NHTSA TP-126-03, dated September 9, 2011.

The vehicle was inspected to ensure it was equipped with an ESC System that:

- Augments vehicle directional stability by applying and adjusting brake torques individually at each wheel to induce a correcting yaw moment to a vehicle;
- Is computer controlled with the computer using a closed-loop algorithm to limit vehicle oversteer and to limit vehicle understeer;
- Has a means to determine the vehicle's yaw rate and to estimate its side slip or side slip derivative with respect to time;
- Has a means to monitor driver steering inputs;
- Has an algorithm to determine the need, and a means to modify engine torque, as necessary, to assist the driver in maintaining control of the vehicle, and
- Is operational over the full speed range of the vehicle (except at vehicle speeds less than 20km/h (12.4mph), when being driven in reverse, or during system initialization).

The vehicle was subjected to a 0.7Hz Sine with Dwell (SWD) Steering Maneuver to ensure that it would meet the stability and responsiveness requirements of the standard as follows:

- At 1.0 second after completion of a required sine with dwell steering input, the yaw rate of the vehicle must not exceed 35 percent of the first peak value of yaw rate recorded after the steering wheel angle changes sign (between first and second peaks during the same test run).
- At 1.75 seconds after completion of a required sine with dwell steering input, the yaw rate of the vehicle must not exceed 20 percent of the first peak value of yaw rate recorded after the steering wheel angle changes sign (between first and second peaks during the same test run).

- The lateral displacement of the vehicle center of gravity with respect to its initial straight path must be at least 1.83 m (6 feet) (for vehicles with a GVWR of 3,500kg (7,716 lb) or less) when computed 1.07 seconds after the Beginning of Steer (BOS) at the specified steering wheel angles.

System malfunction simulations were executed to verify vehicle could identify and indicate a malfunction.

System related malfunction and Off telltales, and related controls were inspected for required identification and labeling.

The vehicle's ESC System appears to meet the performance and equipment requirements as required by FMVSS 126. The test results are summarized on the following summary sheet.

2.0 TEST PROCEDURE AND DISCUSSION OF RESULTS …continued

DATA SUMMARY (Sheet 1 of 2)

VEHICLE MAKE/MODEL/BODY STYLE: Chrysler / 200 / Sedan

VEHICLE NHTSA NO.: C20150303 VIN: 1C3CCCDG9FN632248

VEHICLE TYPE: Pass. Car DATE OF MANUFACTURE: 12-14

LABORATORY: Transportation Research Center Inc.

REQUIREMENTS	**PASS/FAIL**
ESC Equipment and Operational Characteristics (Data Sheet 2)	
The vehicle is to be equipped with an ESC System that meets the equipment and operational characteristics requirements. (S126, S5.1, S5.6)	PASS
ESC Malfunction Telltale – Location, Labeling and Bulb Check (Data Sheet 3)	
Telltale meets the requirements for mounting, symbol or text, color and check of lamp function (S126, S5.3.1, S5.3.2, S5.3.4, S5.3.5, S5.3.6 and S5.3.8)	PASS
"ESC Off" and other System Controls and Telltale (Data Sheet 3 & 4)	
If provided, telltale meets the requirements for mounting, symbol, or text, color and check of lamp function (S126, S5.5.1, S5.5.2, S5.5.3, S5.5.6, S5.5.7, S5.5.8)	PASS
If provided, off control meets the label requirements (S126, S5.4.3)	PASS
If provided, off control and other system controls as well as the ESC off telltale meets the operational requirements (S126, S5.4, S5.4.1, S5.4.4, S5.5.4, and S5.5.9)	PASS

2.0 TEST PROCEDURE AND DISCUSSION OF RESULTS …continued

DATA SUMMARY (Sheet 2 of 2)

REQUIREMENTS	PASS/FAIL
Vehicle Lateral Stability (Data Sheet 8)	
Yaw Rate Ratio at 1 second after COS is less than 35% of peak value. (S126, S5.2.1)	PASS
Yaw Rate Ratio at 1.75 seconds after COS is less than 20% of peak value. (S126, S5.2.2)	PASS
Vehicle Responsiveness (Data Sheet 8)	
Lateral displacement at 1.07 seconds after BOS is at least 1.83 m (6 feet) for vehicles with a GVWR of 3,500 kg (7,716 lbs.) or less, and 1.52 m (5 feet) for vehicles with a GVWR greater than 3,500 kg (7,716 lbs.). (S126 S5.2.3)	PASS
ESC Malfunction Warning (Data Sheet 9)	
Warning is provided to driver after malfunction occurrence. (S126. S5.3)	PASS
Malfunction telltale stayed illuminated as long as malfunction existed and must extinguish after malfunction was corrected. (S126, S5.3.3 and S5.3.7)	PASS

REMARKS

3.0 TEST DATA

DATA SHEET 1 (Sheet 1 of 2)
TEST VEHICLE INSPECTION AND TEST PREPARATION

VEHICLE MAKE/MODEL/BODY STYLE: Chrysler / 200 / Sedan

NHTSA No.: C20150303 TEST DATE: 9-23-15

VIN: 1C3CCCDG9FN632248 MANUFACTURE DATE: 12-14

GVWR: 2,241 KG FRONT GAWR: 1,185 KG REAR GAWR 1,185 KG

SEATING POSITIONS: FRONT 2 MID N/A REAR 3

ODOMETER READING AT START OF TEST: 44 (71) Miles (Kilometers)

DESIGNATED TIRE SIZE(S) FROM VEHICLE LABELING:

Front Axle 235/45R18 94H Rear Axle 235/45R18 94H

INSTALLED TIRE SIZE(S) ON VEHICLE:

From Tire Sidewall	Front Axle	Rear Axle
Manufacturer and Model	Bridgestone Ecopia EP422	Bridgestone Ecopia EP422
Tire Size Designation	235/45R18 94V	235/45R18 94V

TIN Left Front DOT OBFU E26 4014 Right Front DOT OBFU E26 4014

Left Rear DOT OBFU E26 3914 Right Rear DOT OBFU E26 4014

Are installed tire sizes same as labeled tire sizes? X Yes _____ No
If no, contact COTR for further guidance.

DRIVE CONFIGURATIONS (MARK ALL THAT APPLY):

_____ Two Wheel Drive (2WD): ( ) Front Wheel Drive ( ) Rear Wheel Drive
X All Wheel Drive (AWD)
_____ Four Wheel Drive Automatic – differential not locked full time (4WD Automatic)
_____ Four Wheel Drive High Gear Locked Center Differential (4WD HGLD)
_____ Four Wheel Drive Low Gear (4WD Low)
_____ Other (define _____)

3.0 TEST DATA….continued

DATA SHEET 1 (Sheet 2 of 2)
TEST VEHICLE INSPECTION AND TEST PREPARATION

DRIVE CONFIGURATIONS AND MODES: (ex. default, performance, off)
(For each of the vehicle's drive configurations identify available operating modes)

Drive Configuration AWD
Mode(s) default

Drive Configuration
Mode(s)

Drive Configuration
Mode(s)

VEHICLE STABILITY SYSTEMS (Check applicable technologies):

X ESC X Traction Control X Roll Stability Control

Active Suspension X Electronic Throttle Control Active Steering

X ABS

List other systems;

REMARKS:

RECORDED BY: Jason Church DATE: 11-16-15
APPROVED BY: Jeff Sankey DATE: 11-16-15

3.0 TEST DATA….continued

DATA SHEET 2 (Sheet 1 of 2)
ESC SYSTEM HARDWARE AND OPERATIONAL CHARACTERISTICS

VEHICLE MAKE/MODEL/BODY STYLE: Chrysler / 200 / Sedan

NHTSA No.: C20150303 TEST DATE: 9-23-15

ESC SYSTEM IDENTIFICATION:

Manufacturer / Model Bosch / ESP9 CU

ESC SYSTEM HARDWARE (Check applicable hardware):

X Electronic Control Unit	X Hydraulic Control Unit
X Wheel Speed Sensors	X Steering Angle Sensor
X Yaw Rate Sensor	X Lateral Acceleration Sensor

List other components; _____

ESC SYSTEM OPERATIONAL CHARACTERISTICS:

System is capable of generating brake torques at each wheel
X Yes (PASS)
_____ No (FAIL)

Brief explanation with reference to components used:
Omitted due to manufacture's request for confidentiality.

System is capable of determining yaw rate
X Yes (PASS)
_____ No (FAIL)

Brief explanation with reference to components used:
Omitted due to manufacture's request for confidentiality.

System is capable of monitoring driver steering input
X Yes (PASS)
_____ No (FAIL)

Brief explanation with reference to components used:
Omitted due to manufacture's request for confidentiality.

3.0 TEST DATA….continued

DATA SHEET 2 (Sheet 2 of 2)
ESC SYSTEM HARDWARE AND OPERATIONAL CHARACTERISTICS

ESC SYSTEM OPERATIONAL CHARACTERISTICS (continued):

System is capable of estimating side slip or side slip derivative ___X___ Yes (PASS)
_____ No (FAIL)

Brief explanation with reference to data collected and method used:
Omitted due to manufacture's request for confidentiality.

System is capable of modifying engine torque during ESC activation.
___X___ Yes (PASS)
_____ No (FAIL)

Brief explanation of method used to modify engine torque:
Omitted due to manufacture's request for confidentiality.

System is capable of activation at speeds of 20 km/h (12.4 mph) and higher. ___X___ Yes (PASS)
_____ No (FAIL)

Speed system becomes active. Omitted due to manufacture's request for confidentiality.

System is capable of activation during the following driving phases (acceleration, deceleration, coasting, and during activation of ABS or traction control). ___X___ Yes (PASS)
_____ No (FAIL)

Vehicle manufacturer submitted documentation explaining how the ESC system mitigates understeer? ___X___ Yes (PASS)
_____ No (FAIL)

DATA INDICATES COMPLIANCE PASS/FAIL PASS

RECORDED BY: Jason Church DATE: 11-16-15
APPROVED BY: Jeff Sankey DATE: 11-16-15

3.0 TEST DATA….continued

DATA SHEET 3 (Sheet 1 of 4)
ESC MALFUNCTION AND OFF TELLTALES
Location, Labeling and Bulb Check

VEHICLE MAKE/MODEL/BODY STYLE: Chrysler / 200 / Sedan

VEHICLE NHTSA NO. C20150303 TEST DATE: 9-23-15

ESC Malfunction Telltale

Vehicle is equipped with malfunction telltale? X Yes (Pass) ____ No (Fail)

Telltale Location Instrument cluster, right side, inside speedometer display

Telltale is mounted inside the occupant compartment in front of and in clear view of the driver?

X Yes (Pass) ____ No (Fail) If no, explain ____

Malfunction Telltale symbol or abbreviation required by FMVSS No. 101.

Or **ESC**

X Vehicle uses this symbol
____ Vehicle uses this abbreviation
____ Other (Fail)

Note any words or additional symbols used.

Is ESC malfunction telltale part of a common space? ____ Yes X No

Is ESC malfunction telltale also used to indicate activation of the ESC system?

____ Yes X No

If yes, explain telltale operation during ESC activation: ____

DATA SHEET 3 (Sheet 2 of 4)
ESC MALFUNCTION AND OFF TELLTALES
Location, Labeling and Bulb Check

"ESC OFF" Telltale (if provided)

Vehicle is equipped with "ESC Off" telltale? __X__ Yes _____ No

Is "ESC OFF" telltale combined with "ESC Malfunction" telltale utilizing a two part telltale?

_____ Yes __X__ No

Telltale Location Instrument cluster, right side, inside speedometer display

Telltale is mounted inside the occupant compartment in front of and in clear view of the driver?

__X__ Yes (Pass) _____ No (Fail) If no, explain _____

"ESC OFF" Telltale symbol or abbreviation required by FMVSS No. 101.

Or **ESC OFF**

__X__ Vehicle uses this symbol
_____ Vehicle uses this abbreviation
_____ Other (Fail)

Note any words or additional symbols used.

_____

_____

_____

Is ESC Off telltale part of a common space? _____ Yes __X__ No

DATA SHEET 3 (Sheet 3 of 4)
ESC MALFUNCTION AND OFF TELLTALES
Location, Labeling and Bulb Check

Malfunction Telltale Lamp Function, OR Two-Part Malfunction/Off Telltale Lamp Function:
Identify position of starting system when telltale illuminates.

☐ OFF/LOCK ☐ Between OFF/LOCK and ON/RUN
☒ ON/RUN ☐ Between ON/RUN and Start

Is telltale yellow in color? __X__ Yes _____ No (fail)

Time telltale remains illuminated __3.5__ seconds

Note: If telltale is part of common space, it is not required to illuminate during this check of lamp function.

Starter Interlock:
Does vehicle have any starter, transmission or other interlocks that affect operation of the telltale lamp check functions? _____ Yes __X__ No

If yes, describe the interlock feature:

_____

_____

"ESC OFF" Telltale Lamp Function (If separate from Malfunction Telltale):
Identify position of starting system when "ESC OFF" telltale illuminates.

☐ OFF/LOCK ☐ Between OFF/LOCK and ON/RUN
☒ ON/RUN ☐ Between ON/RUN and Start

Is telltale yellow in color? __X__ Yes _____ No (fail)

Time telltale remains illuminated __3.5__ seconds

Note: If telltale is part of common space, it is not required to illuminate during the check of lamp function.

DATA SHEET 3 (Sheet 4 of 4)
ESC MALFUNCTION AND OFF TELLTALES
Location, Labeling and Bulb Check

Starter Interlock:
Does vehicle have any starter, transmission or other interlocks that affect operation of the "ESC OFF" telltale lamp check functions? _____ Yes __X__ No

If yes, describe the interlock feature:

_____

_____

DATA INDICATES COMPLIANCE PASS/FAIL PASS

REMARKS:

RECORDED BY: Jason Church DATE: 11-16-15
APPROVED BY: Jeff Sankey DATE: 11-16-15

DATA SHEET 4 (Sheet 1 of 4)
ESC AND ANCILLARY SYSTEM CONTROLS

"ESC OFF" Controls Identification and Operational Check:

Is the vehicle equipped with a control or controls whose purpose is to deactivate the ESC system or place the ESC system in a mode or modes that may no longer satisfy the performance requirements of the standard?

__X__ Yes _____ No

Type of control or controls provided? (mark all that apply)

_____X_____ Dedicated "ESC Off" control
_____ Multi-functional control with an "ESC Off" mode
_____ Other (describe)

Identify each control location, labeling and selectable modes.

First Control: (If applicable)

Location Center console near HVAC controls
Labeling Skidding car symbol with Off underneath
Modes ESC Off
ESC On

"ESC OFF" Control identification symbol or abbreviation required by FMVSS No. 101.

Or **ESC OFF**

__X__ Vehicle uses this symbol
_____ Vehicle uses this abbreviation

Note any words or additional symbols used.

3.0 TEST DATA….continued

DATA SHEET 4 (Sheet 2 of 4)
ESC AND ANCILLARY SYSTEM CONTROLS

Second Control: (If applicable)
Location N/A
Labeling _____
Modes _____

"ESC OFF" Control identification symbol or abbreviation required by FMVSS No. 101.

Or **ESC OFF**

_____ Vehicle uses this symbol
_____ Vehicle uses this abbreviation

Note any words or additional symbols used.

_____

_____

Identify standard or default drive configuration Default - AWD

Verify standard or default drive configuration selected. X Yes _____ No

Does the "ESC Off" telltale illuminate upon activation of the ESC off control or selection of the "ESC Off" mode on the multi-function control?

_____ NA X Yes _____ No (fail)

Does the "ESC Off" telltale extinguish when the starting system is cycled from "On" ("Run") to "Lock" or "Off" and then back again to the "On" ("Run") position?

_____ NA X Yes _____ No (fail)

If no, describe how the off control functions:

_____

_____

3.0 TEST DATA….continued

DATA SHEET 4 (Sheet 3 of 4)
ESC AND ANCILLARY SYSTEM CONTROLS

If a multi-function control is provided, cycle through each mode setting on the control and record which modes illuminate the "ESC Off" telltale. Also, for those modes that illuminate the ESC Off" telltale identify if the telltale extinguishes upon cycling the ignition system.

Control Modes	"ESC Off" telltale illuminates upon activation of control? (Yes/No)	"ESC Off" telltale extinguishes upon cycling ignition? (Yes/No)
N/A		

For each mode that illuminates the "ESC Off" telltale, did the telltale extinguish when the ignition was cycled from "On" ("Run") to "Lock" or "Off" and then back again to the "On" ("Run") position?

__X__ NA _____ Yes _____ No (fail)

Other System Controls that have an ancillary effect on ESC Operation:

Is the vehicle equipped with any ancillary controls that upon activation may deactivate the ESC System or place the ESC System in a mode or modes that may no longer satisfy the performance requirements of the standard?

_____ Yes __X__ No

List and describe each control (i.e. alternate drive configuration selection controls):

Ancillary Control: System_____
Control Description_____
Labeling_____

Ancillary Control: System_____
Control Description_____
Labeling_____

3.0 TEST DATA….continued

DATA SHEET 4 (Sheet 4 of 4)
ESC AND ANCILLARY SYSTEM CONTROLS

Activate each control listed above and record whether the control illuminates the "ESC Off" telltale. Also, record warnings or messages provided regarding the ESC System.

Ancillary Control	Control Activates "ESC Off" Telltale? (Yes/No)	Warnings or Messages Provided
N/A		

For those controls that illuminate the "ESC Off" telltale above identify if the "ESC Off" telltale extinguishes upon cycling the ignition system.

Ancillary Control	"ESC Off" telltale extinguishes upon cycling ignition? (Yes/No)
N/A	

For each control that illuminates the "ESC Off" telltale, did the telltale extinguish when the ignition is cycled from "On" ("Run") to "Lock" or "Off" and then back again to the "On" ("Run") position? If the control activated places the vehicle into a low-range four-wheel drive configuration designed for low-speed, off–road driving, the ESC System may remain turned off after the ignition has been cycled off and then back on and therefore the "ESC Off" telltale may not extinguish.

__X__ NA _____ Yes _____ No (fail)

DATA INDICATES COMPLIANCE: PASS/FAIL PASS

REMARKS:

RECORDED BY: Jason Church DATE: 11-16-15
APPROVED BY: Jeff Sankey DATE: 11-16-15

DATA SHEET 5 (Sheet 1 of 3)
VEHICLE AND TEST TRACK DATA

VEHICLE MAKE/MODEL/BODY STYLE: Chrysler / 200 / Sedan

NHTSA No.: C20150303 TEST DATE: 10-09-15

Test Track Requirements: Test Surface Slope (0-1 %) 1 %

Peak Friction Coefficient (at least 0.9) 0.94

Test Track Data Meets Requirements: Yes/No Yes
If no, explain: _____

Full Fluid Levels: Fuel X Coolant X Other Fluids Washer (specify)

Tire Pressures: Required: Front Axle 260 kPa Rear Axle 260 kPa

Actual: LF 260 kPa RF 260 kPa
LR 260 kPa RR 260 kPa

Vehicle Dimensions: Track Width 158.8 cm Wheelbase 274.0 cm

Vehicle weight ratings: GAWR Front 1,185 KG GAWR Rear 1,185 KG

Unloaded Vehicle Weight (UVW)

Front Axle 1,020.4 KG Left Front 509.6 KG Right Front 510.8 KG

Rear Axle 696.2 KG Left Rear 353.2 KG Right Rear 343.0 KG

Total UVW 1,716.6 KG

Baseline Weight and Outrigger Selection (only for MPVs, Trucks, Buses)

Calculated Baseline Weight (UVW+ 73 kg) _____ KG

Outrigger size required ("Light," "Standard" or "Heavy") N/A
Light – Baseline weight under 1,588 kg (3,500 lbs.)
Standard - Baseline weight equal to or greater than 1,588 kg (3,500 lbs.) and under 2,722 kg (6,000 lbs.)
Heavy - Baseline weight equal to or greater than 2,722 kg (6,000 lbs.)

DATA SHEET 5 (Sheet 2 of 3)
VEHICLE AND TEST TRACK DATA

UVW with Outriggers (only for MPVs, Trucks, Buses)

Front Axle_____KG Left Front_____KG Right Front _____KG

Rear Axle_____KG Left Rear_____KG Right Rear _____KG

Total UVW w/ Outriggers___N/A_____KG

Loaded Vehicle Weight w/ Driver and Instrumentation (No Ballast)

Front Axle___1,112.6__KG Left Front___561.0__KG Right Front __551.6__KG

Rear Axle____762.8__KG Left Rear___391.6__KG Right Rear __371.2__KG

Vehicle Weight____1,875.4__KG

Ballast Required = [**Total UVW** + 168 KG] - **Loaded Weight w/ Driver and Instrumentation**

= [__1,716.6__KG + 168 KG] - __1,875.4_KG

= ____9.2__KG

Total Loaded Vehicle Weight w/Driver, Instrumentation and Ballast

Front Axle__1,116.8_KG Left Front___560.6__KG Right Front __556.2__KG

Rear Axle___770.2_KG Left Rear___394.4__KG Right Rear __375.8__KG

Total Loaded Vehicle Weight___1,887.0__KG

3.0 TEST DATA….continued

DATA SHEET 5 (Sheet 3 of 3)
VEHICLE AND TEST TRACK DATA

Center of Gravity and Inertial Sensing System Location at Loaded Vehicle Condition

x-distance (longitudinal) Point of reference is the front axle centerline.
(Positive from front axle toward rear of vehicle.)

y-distance (lateral) Point of reference is the vehicle centerline.
(Positive from the center toward the right.)

z-distance (vertical) Point of reference is the ground plane.
(Positive from the ground up.)

Locations:

	Center of Gravity	Inertial Sensing System
x-distance	111.8 cm	165.0 cm
y-distance	-1.0 cm	-0.1 cm
z-distance	56.5 cm	81.3 cm

Roof Height: 148.7 cm

Distance Between Ultrasonic Sensors: 191.0 cm

REMARKS:

RECORDED BY: Jason Church DATE: 11-16-15
APPROVED BY: Jeff Sankey DATE: 11-16-15

3.0 TEST DATA….continued

DATA SHEET 6 (Sheet 1 of 3)
BRAKE AND TIRE CONDITIONING

VEHICLE MAKE/MODEL/BODY STYLE: Chrysler / 200 / Sedan

VEHICLE NHTSA No.: C20150303

Measured Cold Tire Pressures: LF 260 kPa RF 260 kPa

LR 260 kPa RR 260 kPa

Wind Speed 6.7 m/sec
(10m/sec (22mph) max for passenger cars; 5m/s (11mph) max. for MPVs and Trucks)

Ambient Temperature (7°C (45°F) - 40°C (104°F)) 14.4 °C

Brake Conditioning Time; 12:50 PM Date; 10-13-15

56 km/h (35 mph) Brake Stops

Number of stops executed (10 required) 10 stops

Observed deceleration rate range (.5g target) 0.48 – 0.53 g

72 km/h (45 mph) Brake Stops

Number of stops executed (3 required) 3 stops

Number of stops ABS activated (3 required) 3 stops

Observed deceleration rate range 1.0 – 1.1 g

72 km/h (45 mph) Brake Cool Down Period

Duration of cool down period (5 minutes min.) 5.0 minutes

3.0 TEST DATA….continued

DATA SHEET 6 (Sheet 2 of 3)
BRAKE AND TIRE CONDITIONING

Tire Conditioning Series No. 1 Time: 9:00 AM Date: 10-16-15

Measured Tire Pressures: LF 260 kPa RF 260 kPa

LR 260 kPa RR 260 kPa

Wind Speed 4.0 m/sec
(10m/sec (22mph) max for passenger cars; 5m/s (11mph) max. for MPVs and Trucks)

Ambient Temperature (7°C (45°F) - 40°C (104°F)) 8.3 °C

30 meter (100 ft) Diameter Circle Maneuver				
Test Runs	Steering Direction	Target Lateral Acceleration (g)	Observed Lateral Acceleration (g)	Observed Vehicle Speed (km/h)
1-3	Clockwise	0.5-0.6	0.55	45.0
4-6	Counterclockwise	0.5-0.6	0.55	45.0

1 Hz 5 Cycle Sinusoidal Steering Maneuver to Determine Steering Wheel Angle For 0.5-0.6g Lateral Acceleration				
Test Runs	Vehicle Speed Km/h(mph)	Steering Wheel Angle (degrees)	Target Peak Lateral Acceleration (g)	Observed Peak Lateral Acceleration (g)
1	56±2 (35±1)	30	0.5-0.6	0.26
2	56±2 (35±1)	70	0.5-0.6	0.56
3	56±2 (35±1)		0.5-0.6	
4	56±2 (35±1)		0.5-0.6	

Steering wheel angle that corresponds to a peak 0.5–0.6g lateral acceleration; 70 degrees

1 Hz 10 Cycle Sinusoidal Steering Maneuver				
Test Runs	Vehicle Speed Km/h (mph)	Steering Wheel Angle (degrees)	Target Peak Lateral Acceleration (g)	Observed Peak Lateral Acceleration (g)
1 - 3	56±2 (35±1)	70 (cycles 1-10)	0.5-0.6	0.56
4	56±2 (35±1)	70 (cycles 1-9)	0.5-0.6	0.56
		140 (cycle 10)*	N/A	0.90

* The steering wheel angle used for cycle 10 should be twice the angle used for cycles 1-9.

DATA SHEET 6 (Sheet 3 of 3)
BRAKE AND TIRE CONDITIONING

Tire Conditioning Series No. 2 Time: 10:30 AM Date: 10-16-15

Measured Tire Pressures: LF 270 kPa RF 270 kPa

LR 265 kPa RR 265 kPa

Wind Speed 4.5 m/sec
(10m/sec (22mph) max for passenger cars; 5m/s (11mph) max. for MPVs and Trucks)

Ambient Temperature (7°C (45°F) - 40°C (104°F)) 11.1 °C

30 meter (100 ft) Diameter Circle Maneuver				
Test Runs	Steering Direction	Target Lateral Acceleration (g)	Observed Lateral Acceleration (g)	Observed Vehicle Speed (km/h)
1-3	clockwise	0.5-0.6	0.55	45.0
4-6	counterclockwise	0.5-0.6	0.55	45.0

1 Hz 5 Cycle Sinusoidal Steering Maneuver to Determine Steering Wheel Angle For 0.5-0.6g Lateral Acceleration				
Test Runs	Vehicle Speed Km/h (mph)	Steering Wheel Angle (degrees)	Target Peak Lateral Acceleration (g)	Observed Peak Lateral Acceleration (g)
1	56±2 (35±1)	N/A	0.5-0.6	N/A
2	56±2 (35±1)		0.5-0.6	
3	56±2 (35±1)		0.5-0.6	
4	56±2 (35±1)		0.5-0.6	

Steering wheel angle that corresponds to a peak 0.5–0.6g lateral acceleration; 70 degrees

1 Hz 10 Cycle Sinusoidal Steering Maneuver				
Test Runs	Vehicle Speed (mph)	Steering Wheel Angle (degrees)	Target Peak Lateral Acceleration (g)	Observed Peak Lateral Acceleration (g)
1 - 3	56±2 (35±1)	70 (cycles 1-10)	0.5-0.6	0.56
4	56±2 (35±1)	70 (cycles 1-9)	0.5-0.6	0.56
		140 (cycle 10)*	N/A	0.90

* The steering wheel angle used for cycle 10 should be twice the angle used for cycles 1-9.

REMARKS:

RECORDED BY: Jason Church DATE: 11-16-15
APPROVED BY: Jeff Sankey DATE: 11-16-15

3.0 TEST DATA….continued

DATA SHEET 7 (1 of 2)
SLOWLY INCREASING STEER (SIS) MANEUVER

VEHICLE MAKE/MODEL/BODY STYLE: Chrysler / 200 / Sedan

VEHICLE NHTSA No.: C20150303 TEST DATE: 10-16-15

Measured Tire Pressures: LF 272 kPa RF 272 kPa
LR 265 kPa RR 265 kPa

Wind Speed 4.0 m/sec
(10m/sec (22mph) max for passenger cars; 5m/s (11mph) max. for MPVs and Trucks)

Ambient Temperature (7°C (45°F) - 40°C (104°F)) 8.3 °C

Selected Drive Configuration: FWD

Selected Mode: ESC On (default)

Preliminary Left Steer Maneuver:
Lateral Acceleration measured at 30 degrees steering wheel angle ($a_{y,30\ degrees}$)

$a_{y,30\ degrees}$ = 0.38 g

Assuming a linear relationship the following ratio should be used to calculate the steering wheel angle at .55g.

$$\frac{30\ \text{degrees}}{a_{\text{y,30degrees}}} = \frac{\delta_{SIS}}{0.55\ \text{g}}$$

δ_{SIS} = 43.4 degrees @ 0.55g

δ_{SIS} = 50 degrees (rounded)

Steering Wheel Angle at Corrected 0.3 g Lateral Acceleration:

Maneuver #	Initial Steer Direction	Time Clock (5 min max between runs)	Steering Wheel Angle to nearest 0.1 degree (degrees)	All Conditions Met?
0007	Left	9:55 am	-26.2	Yes
0009	Left	9:58 am	-26.4	Yes
0010	Left	10:00 am	-26.5	Yes
0011	Right	10:02 am	26.5	Yes
0012	Right	10:04 am	26.2	Yes
0013	Right	10:06 am	26.2	Yes

3.0 TEST DATA….continued

DATA SHEET 7 (2 of 2)
SLOWLY INCREASING STEER (SIS) MANEUVER

Average Overall Steering Wheel Angle:

$$\delta_{0.3\ g,\ overall} = (|\delta_{0.3\ g,\ left\ (1)}| + |\delta_{0.3\ g,\ left\ (2)}| + |\delta_{0.3\ g,\ left\ (3)}| + \delta_{0.3\ g,\ right\ (1)} + \delta_{0.3\ g,\ right\ (2)} + \delta_{0.3\ g,\ right\ (3)}) / 6$$

$\delta_{0.3\ g,\ overall}$ = 26.3 degrees
[to nearest 0.1 degree]

REMARKS:

RECORDED BY: Jason Church DATE: 11-16-15
APPROVED BY: Jeff Sankey DATE: 11-16-15

3.0 TEST DATA….continued

DATA SHEET 8 (1 of 3)
VEHICLE LATERAL STABILITY AND RESPONSIVENESS

VEHICLE MAKE/MODEL/BODY STYLE: Chrysler / 200 / Sedan

VEHICLE NHTSA No.: C20150303 TEST DATE: 10-16-15

Tire conditioning completed	X Yes	____ No
ESC system is enabled	X Yes	____ No
On track calibration checks have been completed	X Yes	____ No
On track static data file for each sensor obtained	X Yes	____ No

Selected Drive Configuration: AWD
Selected Mode: ESC On (default)

Overall steering wheel angle ($\delta_{0.3\ g,\ overall}$) 26.3 degrees

Lateral Stability Test Series No. 1 – Counterclockwise Initial Steer Direction

Maneuver #	Clock Time (1.5 – 5 min between each test run)	Commanded Steering Wheel Angle[1] (degrees)		Yaw Rates (degrees/sec)			YRR at 1.0 sec after COS [≤ 35%]		YRR at 1.75 sec after COS [≤ 20%]	
		Scalar	Angle	$\dot{\psi}_{Peak}$	$\dot{\psi}_{1.0\sec}$	$\dot{\psi}_{1.75\sec}$	%	Pass/ Fail	%	Pass/ Fail
0015	10:47 am	1.5* $\delta_{0.3\ g}$	39	12.23	0.01	0.02	0.07	Pass	0.17	Pass
0016	10:50 am	2.0* $\delta_{0.3\ g}$	53	16.64	-0.10	0.00	-0.62	Pass	0.00	Pass
0017	10:53 am	2.5* $\delta_{0.3\ g}$	66	19.81	-0.11	-0.08	-0.56	Pass	-0.39	Pass
0018	10:56 am	3.0* $\delta_{0.3\ g}$	79	23.35	-0.13	-0.10	-0.56	Pass	-0.41	Pass
0019	10:59 am	3.5* $\delta_{0.3\ g}$	92	26.75	-0.21	-0.23	-0.78	Pass	-0.85	Pass
0020	11:02 am	4.0* $\delta_{0.3\ g}$	105	29.66	-0.01	0.03	-0.02	Pass	0.09	Pass
0021	11:05 am	4.5* $\delta_{0.3\ g}$	118	32.40	-0.17	-0.07	-0.54	Pass	-0.22	Pass
0022	11:07 am	5.0* $\delta_{0.3\ g}$	132	31.22	-0.10	-0.09	-0.33	Pass	-0.28	Pass
0023	11:10 am	5.5* $\delta_{0.3\ g}$	145	34.46	-0.26	-0.18	-0.74	Pass	-0.53	Pass
0024	11:12 am	6.0* $\delta_{0.3\ g}$	158	36.28	0.04	-0.10	0.11	Pass	-0.27	Pass
0025	11:15 am	6.5* $\delta_{0.3\ g}$	171	37.64	-0.16	-0.21	-0.43	Pass	-0.57	Pass
0026	11:17 am	7.0* $\delta_{0.3\ g}$	184	37.68	-0.01	-0.16	-0.03	Pass	-0.42	Pass
0027	11:20 am	7.5* $\delta_{0.3\ g}$	197	38.50	-0.01	-0.09	-0.03	Pass	-0.24	Pass
0028	11:22 am	8.0* $\delta_{0.3\ g}$	210	38.57	0.08	0.03	0.20	Pass	0.07	Pass
0029	11:25 am	8.5* $\delta_{0.3\ g}$	224	38.54	0.12	-0.01	0.31	Pass	-0.01	Pass
0030	11:27 am	9.0* $\delta_{0.3\ g}$	237	38.84	-0.19	-0.25	-0.48	Pass	-0.63	Pass
0031	11:30 am	9.5* $\delta_{0.3\ g}$	250	37.78	-0.03	-0.05	-0.08	Pass	-0.12	Pass
0032	11:32 am	10.0* $\delta_{0.3\ g}$	263	40.63	0.09	0.00	0.22	Pass	0.01	Pass
0033	11:34 am	10.3* $\delta_{0.3\ g}$	270	37.95	0.04	0.05	0.11	Pass	0.14	Pass

1. Maneuver execution should continue until a steering wheel angle magnitude factor of 6.5*$\delta_{0.3\ g,\ overall}$ or 270 degrees is utilized, whichever is greater provided the calculated magnitude of 6.5*$\delta_{0.3\ g,\ overall}$ is less than or equal to 300 degrees. If 6.5*$\delta_{0.3\ g,\ overall}$ is less than 270 degrees maneuver execution should continue by increasing the steering wheel angle magnitude by multiples of 0.5*$\delta_{0.3\ g,\ overall}$ without exceeding the 270 degree steering wheel angle.

3.0 TEST DATA….continued

DATA SHEET 8 (2 of 3)
VEHICLE LATERAL STABILITY AND RESPONSIVENESS

Lateral Stability Test Series No. 2 – Clockwise Initial Steer Direction

Maneuver #	Clock Time (1.5 – 5 min between each test run)	Commanded Steering Wheel Angle[1] (degrees)		Yaw Rates (degrees/sec)			YRR at 1.0 sec after COS [≤ 35%]		YRR at 1.75 sec after COS [≤ 20%]	
		Scalar	Angle	$\dot{\psi}_{Peak}$	$\dot{\psi}_{1.0\text{sec}}$	$\dot{\psi}_{1.75\text{sec}}$	%	Pass/ Fail	%	Pass/ Fail
0034	11:37 am	1.5* $\delta_{0.3\,g}$	39	-12.07	-0.01	-0.05	0.08	Pass	0.42	Pass
0035	11:40 am	2.0* $\delta_{0.3\,g}$	53	-16.29	-0.25	-0.13	1.53	Pass	0.81	Pass
0036	11:42 am	2.5* $\delta_{0.3\,g}$	66	-19.81	0.01	0.00	-0.06	Pass	0.01	Pass
0037	11:45 am	3.0* $\delta_{0.3\,g}$	79	-22.66	0.13	0.13	-0.56	Pass	-0.57	Pass
0038	11:48 am	3.5* $\delta_{0.3\,g}$	92	-26.45	0.08	0.07	-0.29	Pass	-0.27	Pass
0039	11:50 am	4.0* $\delta_{0.3\,g}$	105	-29.59	-0.08	-0.07	0.27	Pass	0.25	Pass
0040	11:53 am	4.5* $\delta_{0.3\,g}$	118	-33.22	-0.06	-0.14	0.17	Pass	0.44	Pass
0041	11:55 am	5.0* $\delta_{0.3\,g}$	132	-33.02	-0.05	-0.05	0.16	Pass	0.17	Pass
0042	11:58 am	5.5* $\delta_{0.3\,g}$	145	-35.78	-0.07	-0.13	0.20	Pass	0.36	Pass
0043	12:00 pm	6.0* $\delta_{0.3\,g}$	158	-39.06	-0.15	0.02	0.37	Pass	-0.05	Pass
0044	12:03 pm	6.5* $\delta_{0.3\,g}$	171	-40.00	-0.12	-0.19	0.29	Pass	0.48	Pass
0045	12:05 pm	7.0* $\delta_{0.3\,g}$	184	-42.76	-0.09	-0.06	0.22	Pass	0.13	Pass
0046	12:08 pm	7.5* $\delta_{0.3\,g}$	197	-41.90	-0.03	0.02	0.07	Pass	-0.05	Pass
0047	12:10 pm	8.0* $\delta_{0.3\,g}$	210	-45.35	-0.24	-0.20	0.53	Pass	0.44	Pass
0048	12:13 pm	8.5* $\delta_{0.3\,g}$	224	-44.22	-0.11	-0.20	0.26	Pass	0.45	Pass
0049	12:16 pm	9.0* $\delta_{0.3\,g}$	237	-43.23	-0.18	-0.19	0.42	Pass	0.44	Pass
0050	12:18 pm	9.5* $\delta_{0.3\,g}$	250	-45.06	-0.07	-0.09	0.16	Pass	0.21	Pass
0051	12:21 pm	10.0* $\delta_{0.3\,g}$	263	-43.04	-0.13	-0.15	0.30	Pass	0.34	Pass
0052	12:24 pm	10.3* $\delta_{0.3\,g}$	270	-44.46	-0.14	-0.18	0.32	Pass	0.39	Pass

1. Maneuver execution should continue until a steering wheel angle magnitude factor of 6.5*$\delta_{0.3\,g,\,overall}$ or 270 degrees is utilized, whichever is greater provided the calculated 6.5*$\delta_{0.3\,g,\,overall}$ is less than or equal to 300 degrees. If 6.5*$\delta_{0.3\,g,\,overall}$ is less than 270 degrees maneuver execution should continue by increasing the steering wheel angle magnitude by multiples of 0.5*$\delta_{0.3\,g,\,overall}$ without exceeding the 270 degree steering wheel angle.

During execution of the sine with dwell maneuvers were any of the following events observed?

Rim-to-pavement contact	_____ Yes	__X__ No
Tire debeading	_____ Yes	__X__ No
Loss of pavement contact of vehicle tires	_____ Yes	__X__ No
Did the test driver experience any vehicle loss of control or spinout?	_____ Yes	__X__ No

If "Yes" explain the event and consult with the COTR. _____

_____

3.0 TEST DATA….continued

DATA SHEET 8 (3 of 3)
VEHICLE LATERAL STABILITY AND RESPONSIVENESS

Responsiveness – Lateral Displacement

Maneuver #	Initial Steer Direction	Commanded Steering Wheel Angle ($5.0*\delta_{0.3\ g,\ overall}$ or greater)		Calculated Lateral Displacement[1]	
		Scalar	Angle (degrees)	Distance (m)	Pass/Fail
0022	Counter Clockwise	5.0* $\delta_{0.3\ g}$	132	3.04	Pass
0023	Counter Clockwise	5.5* $\delta_{0.3\ g}$	145	3.14	Pass
0024	Counter Clockwise	6.0* $\delta_{0.3\ g}$	158	3.14	Pass
0025	Counter Clockwise	6.5* $\delta_{0.3\ g}$	171	3.20	Pass
0026	Counter Clockwise	7.0* $\delta_{0.3\ g}$	184	3.16	Pass
0027	Counter Clockwise	7.5* $\delta_{0.3\ g}$	197	3.15	Pass
0028	Counter Clockwise	8.0* $\delta_{0.3\ g}$	210	3.12	Pass
0029	Counter Clockwise	8.5* $\delta_{0.3\ g}$	224	3.10	Pass
0030	Counter Clockwise	9.0* $\delta_{0.3\ g}$	237	3.05	Pass
0031	Counter Clockwise	9.5* $\delta_{0.3\ g}$	250	3.01	Pass
0032	Counter Clockwise	10.0* $\delta_{0.3\ g}$	263	3.01	Pass
0033	Counter Clockwise	10.3* $\delta_{0.3\ g}$	270	2.93	Pass
0041	Clockwise	5.0* $\delta_{0.3\ g}$	132	3.13	Pass
0042	Clockwise	5.5* $\delta_{0.3\ g}$	145	3.23	Pass
0043	Clockwise	6.0* $\delta_{0.3\ g}$	158	3.35	Pass
0044	Clockwise	6.5* $\delta_{0.3\ g}$	171	3.32	Pass
0045	Clockwise	7.0* $\delta_{0.3\ g}$	184	3.32	Pass
0046	Clockwise	7.5* $\delta_{0.3\ g}$	197	3.33	Pass
0047	Clockwise	8.0* $\delta_{0.3\ g}$	210	3.34	Pass
0048	Clockwise	8.5* $\delta_{0.3\ g}$	224	3.30	Pass
0049	Clockwise	9.0* $\delta_{0.3\ g}$	237	3.28	Pass
0050	Clockwise	9.5* $\delta_{0.3\ g}$	250	3.31	Pass
0051	Clockwise	10.0* $\delta_{0.3\ g}$	263	3.24	Pass
0052	Clockwise	10.3* $\delta_{0.3\ g}$	270	3.27	Pass

1. Lateral displacement should be $\geq$ 1.83 m (6 ft) for vehicles with a GVWR of 3,500 kg (7,716 lb) or less; and $\geq$ 1.52 m (5ft) for vehicles with a GVWR greater than 3,500 kg (7,716 lb).

DATA INDICATES COMPLIANCE: PASS/FAIL PASS

.

RECORDED BY: Jason Church DATE: 11-16-15

APPROVED BY: Jeff Sankey DATE: 11-16-15

3.0 TEST DATA….continued

DATA SHEET 9 (Sheet 1 of 6)
MALFUNCTION WARNING TEST
(Test Number __1__)

VEHICLE MAKE/MODEL/BODY STYLE: Chrysler / 200 / Sedan

VEHICLE NHTSA No.: C20150303 TEST DATE: 11-12-15

METHOD OF MALFUNCTION SIMULATION:
Describe method of malfunction simulation: Disconnect the 40-amp fuse (F93) from the under hood fuse box.

MALFUNCTION TELLTALE ILLUMINATION:
Telltale illuminates and remains illuminated after ignition locking system is activated and if necessary the vehicle is driven at least 2 minutes as specified in section 13.12. B.

__X__ Yes _____No (Fail)

Telltale illuminated when engine was started, no driving required.

__X__ Yes (Pass) _____No

Driving was required to illuminate telltale. _____ Yes __X__No

When driving was required, telltale illuminated before vehicle speed of 48± 8 km/h (30± 5mph) was reached.

__X__NA _____ Yes (Pass) _____No

If driving required, approximate driving time below vehicle speed of 48± 8 km/h (30± 5mph) to activate telltale.

_____ Seconds

When driving was required, telltale illuminated after a vehicle speed above 48± 8 km/h (30± 5mph) was reached.

__X__NA _____ Yes _____No

If driving required, time for telltale to illuminate after starting system is activated and vehicle speed of 48± 8 km/h (30± 5mph) is reached.

_____ Seconds (must be within 2 minutes) _____ Pass _____ Fail

3.0 TEST DATA….continued

DATA SHEET 9 (Sheet 2 of 6)
MALFUNCTION WARNING TEST
(Test Number __1__)

Identify all other telltales and/or warning messages activated upon simulating subject ESC system malfunction. ESC and ABS malfunction telltales illuminated.

Did the malfunction telltale re-illuminate after the starting system was shut off for five minutes and then turned back on with the engine running?

__X__ Yes (Pass) _____No (Fail)

ESC SYSTEM RESTORATION:
Describe method used to restore system to normal operation: Reinstall the 40-amp fuse (F93) in the under hood fuse box.

After system restoration is completed, telltale extinguishes after vehicle starting system is activated and if necessary the vehicle is driven at least 2 minutes as specified in section 13.12. D.

__X__ Yes _____No (Fail)

Telltale extinguished when engine was started, no driving required.

__X__ Yes (Pass) _____No

Driving was required to extinguish telltale. _____ Yes __X__No

When driving was required, telltale extinguished before vehicle speed of 48± 8 km/h (30± 5mph) was reached.

__X__NA _____ Yes (Pass) _____No

If driving required, approximate driving time below vehicle speed of 48± 8 km/h (30± 5mph) to extinguish telltale.

_____ Seconds

3.0 TEST DATA….continued

DATA SHEET 9 (Sheet 3 of 6)
MALFUNCTION WARNING TEST
(Test Number __1__)

When driving was required, telltale extinguished after a vehicle speed above 48± 8 km/h (30± 5mph) was reached.

__X__NA _____ Yes _____No

If driving required, time for telltale to extinguish after starting system is activated and vehicle speed of 48± 8 km/h (30± 5mph) is reached.

_____ Seconds (must be within 2 minutes) _____ Pass _____ Fail

DATA INDICATES COMPLIANCE: PASS/FAIL __PASS__

REMARKS:

RECORDED BY: Jason Church DATE: 11-16-15
APPROVED BY: Jeff Sankey DATE: 11-16-15

3.0 TEST DATA….continued

DATA SHEET 9 (Sheet 4 of 6)
MALFUNCTION WARNING TEST
(Test Number __2__)

VEHICLE MAKE/MODEL/BODY STYLE: ____Chrysler / 200 / Sedan_____

VEHICLE NHTSA No.:___C20150303__ TEST DATE:_11-12-15_____

METHOD OF MALFUNCTION SIMULATION:
Describe method of malfunction simulation:___Disconnect the ORC (Occupant Restraint Control) Module.

MALFUNCTION TELLTALE ILLUMINATION:
Telltale illuminates and remains illuminated after ignition locking system is activated and if necessary the vehicle is driven at least 2 minutes as specified in section 13.12. B.

__X__ Yes _____No (Fail)

Telltale illuminated when engine was started, no driving required.

__X__ Yes (Pass) _____No

Driving was required to illuminate telltale. _____ Yes __X__No

When driving was required, telltale illuminated before vehicle speed of 48± 8 km/h (30± 5mph) was reached.

__X__NA _____ Yes (Pass) _____No

If driving required, approximate driving time below vehicle speed of 48± 8 km/h (30± 5mph) to activate telltale.

_____ Seconds

When driving was required, telltale illuminated after a vehicle speed above 48± 8 km/h (30± 5mph) was reached.

__X__NA _____ Yes _____No

If driving required, time for telltale to illuminate after starting system is activated and vehicle speed of 48± 8 km/h (30± 5mph) is reached.

_____ Seconds (must be within 2 minutes) _____ Pass _____ Fail

3.0 TEST DATA….continued

DATA SHEET 9 (Sheet 5 of 6)
MALFUNCTION WARNING TEST
(Test Number __2__)

Identify all other telltales and/or warning messages activated upon simulating subject ESC system malfunction. ESC malfunction and Electronic Park Brake failure telltales illuminated.

Did the malfunction telltale re-illuminate after the starting system was shut off for five minutes and then turned back on with the engine running?

__X__ Yes (Pass) _____ No (Fail)

ESC SYSTEM RESTORATION:
Describe method used to restore system to normal operation: Reconnect the ORC (Occupant Restraint Control) Module.

After system restoration is completed, telltale extinguishes after vehicle starting system is activated and if necessary the vehicle is driven at least 2 minutes as specified in section 13.12. D.

__X__ Yes _____ No (Fail)

Telltale extinguished when engine was started, no driving required.

__X__ Yes (Pass) _____ No

Driving was required to extinguish telltale. _____ Yes __X__ No

When driving was required, telltale extinguished before vehicle speed of 48± 8 km/h (30± 5mph) was reached.

__X__ NA _____ Yes (Pass) _____ No

If driving required, approximate driving time below vehicle speed of 48± 8 km/h (30± 5mph) to extinguish telltale.

_____ Seconds

3.0 TEST DATA….continued

DATA SHEET 9 (Sheet 6 of 6)
MALFUNCTION WARNING TEST
(Test Number __2__)

When driving was required, telltale extinguished after a vehicle speed above 48± 8 km/h (30± 5mph) was reached.

__X__NA _____ Yes _____No

If driving required, time for telltale to extinguish after starting system is activated and vehicle speed of 48± 8 km/h (30± 5mph) is reached.

_____ Seconds (must be within 2 minutes) _____ Pass _____ Fail

DATA INDICATES COMPLIANCE: PASS/FAIL ___PASS____

REMARKS:

RECORDED BY: __Jason Church_____ DATE:_____11-16-15___
APPROVED BY: __Jeff Sankey_____ DATE:_____11-16-15___

4.0 TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

Type	Output	Range	Resolution	Accuracy	Specifics	Serial Number	Calibration
Tire Pressure Gauge	Vehicle Tire Pressure	0-99 psi	0.01 psi	±0.5% of applied pressure	Intercomp Model: 360045	0113SS11051	By: TRC Inc. Date: 9-16-15 Due: 3-16-16
Platform Scales	Vehicle Total, Wheel, and Axle Load	0-2500 lb per each of four pads	0.5 lb	±1.0% of applied load	Mettler Toledo Model: JXGA1000	5225831-5JC	By: Mettler Toledo Date: 8-18-15 Due: 11-30-15
Automated Steering Machine with Steering Angle Encoder	Handwheel Angle	±800 deg	0.25 deg	±0.25 deg	Heitz Automotive Testing Model: Sprint 3	60303	By: ATI-Heitz Date: 3-13-15 Due: 3-14-16
Multi-Axis Inertial Sensing System	Longitudinal, Lateral, and Vertical Acceleration Roll, Yaw, and Pitch Rate	Accelerometers: ±2 g Angular Rate Sensors: ±100 deg/s	Accelerometers: ≤10 ug Angular Rate Sensors: ≤0.004 deg/s	Accelerometers: ≤0.05% of full range Angular Rate Sensors: 0.05% of full range	BEI Technologies Model: MotionPAK MP-1	0768	By: BEI Tech. Date: 3-11-15 Due: 3-11-16
Radar Speed Sensor and Dashboard Display	Vehicle Speed	0-125 mph	0.009 mph	±0.25% of full scale	A-DAT Corp. Radar Model: DRS-6 Display Model: RD-2	1400603	By: TRC Inc. Date: 5-4-15 Due: 5-4-16
Ultrasonic Distance Measuring System	Left and Right Side Vehicle Height	5-24 inches	0.01 inches	±0.25% of maximum distance	Massa Products Corporation Model: M-5000/220	104619 & 104613	By: Consumers Energy Laboratory Services Date: 2-19-15 Due: 2-19-16
Data Acquisition System [Amplify, Anti-Alias, and Digitize]	Record Time; Velocity; Distance; Lateral, Longitudinal, and Vertical Accelerations; Roll, Yaw, and Pitch Rates; Steering Wheel Angle.	Sufficient to meet or exceed individual sensors	200 Hz	Sufficient to meet or exceed individual sensors	Dewetron Sidehand DAS Model: DA-121 Digitizer Model: Dewe-Orion-1616-100 Amplifier/AntiAliasing: MDAQ-FILT-10-S	101031009	By: TRC Inc. Date: 1-19-15 Due: 1-19-16
Load Cell	Vehicle Brake Pedal Force	0-300 lb	1 lb	±0.05% of full scale	DATRON Model: DTM-LPA	4970-1103	By: TRC Inc. Date: per test Due: per test
Coordinate Measurement Machine	Inertial Sensing System Location	0-10 feet	0.001 inch	±0.003% of full scale	FARO International Model: Faro Advantage	C12-05-06-04829	By: FARO Date: 10-06-15 Due: 10-06-16
Outriggers	No output. Safety Item.	N/A	N/A	N/A	NHTSA Titanium Outriggers Model: Docket 2007-27662-11	N/A	N/A

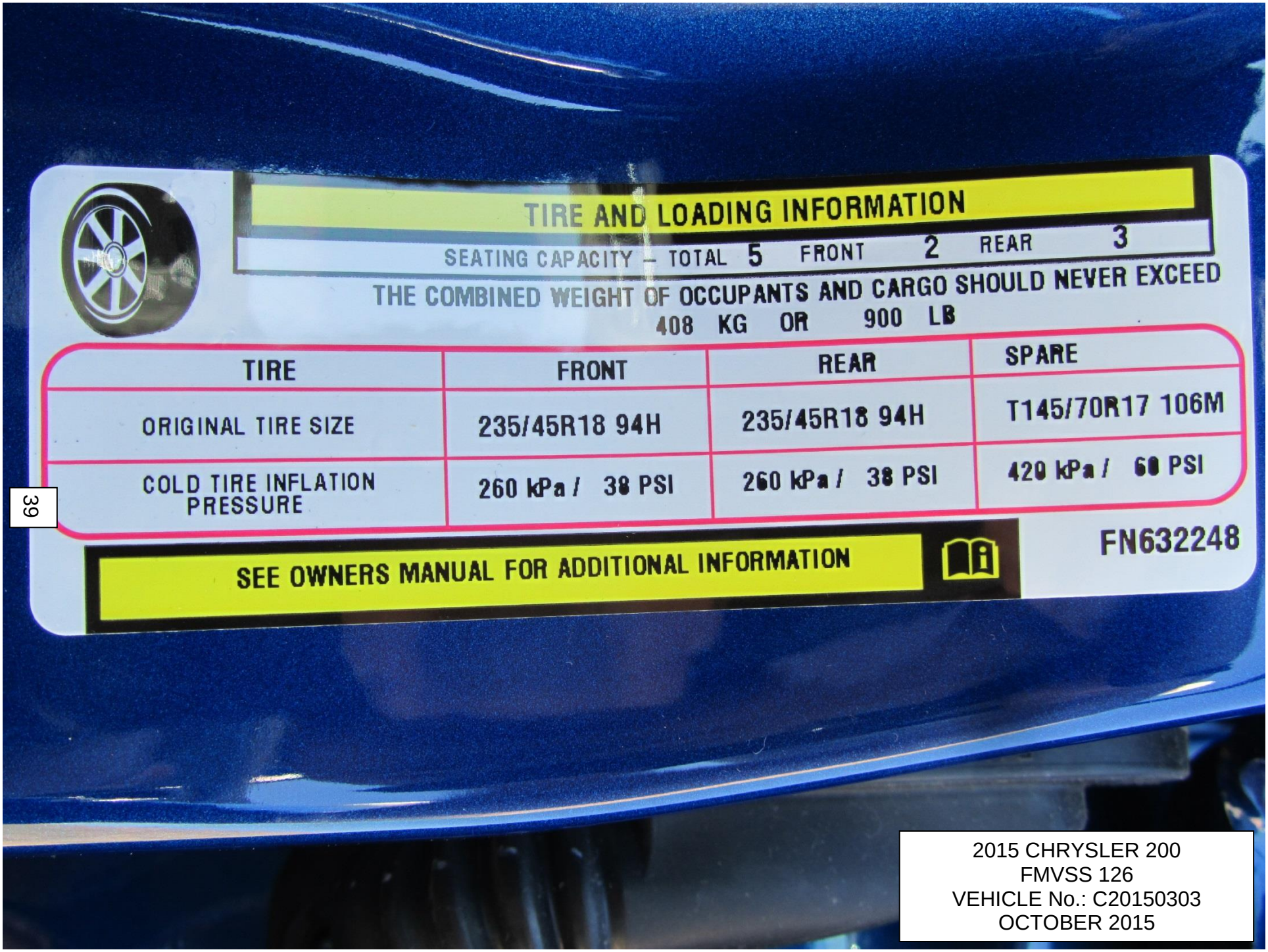
5.0 PHOTOGRAPHS

5.1 ¾ FRONT VIEW FROM LEFT SIDE OF VEHICLE
5.2 ¾ REAR VIEW FROM RIGHT SIDE OF VEHICLE
5.3 VEHICLE CERTIFICATION LABEL
5.4 TIRE AND LOADING INFORMATION LABEL
5.5 WINDOW STICKER (MONRONEY LABEL)
5.6 ESC OFF AND ESC MALFUNCTION TELLTALES
5.7 ESC OFF CONTROL LOCATION
5.8 ESC OFF CONTROL
5.9 ¾ FRONT VIEW - TEST VEHICLE INSTRUMENTED
5.10 ¾ REAR VIEW – TEST VEHICLE INSTRUMENTED
5.11 STEERING WHEEL CONTROLLER AND DATA ACQUISITION SYSTEM
5.12 STEERING CONTROLLER BATTERY BOX
5.13 INERTIA MEASUREMENT UNIT
5.14 VEHICLE SPEED SENSOR
5.15 BODY ROLL SENSOR (DRIVER SIDE)
5.16 BODY ROLL SENSOR (PASSENGER SIDE)
5.17 BRAKE PEDAL FORCE TRANSDUCER

5.1 ¾ FRONT VIEW FROM LEFT SIDE OF VEHICLE

5.2 ¾ REAR VIEW FROM RIGHT SIDE OF VEHICLE

5.3 VEHICLE CERTIFICATION LABEL



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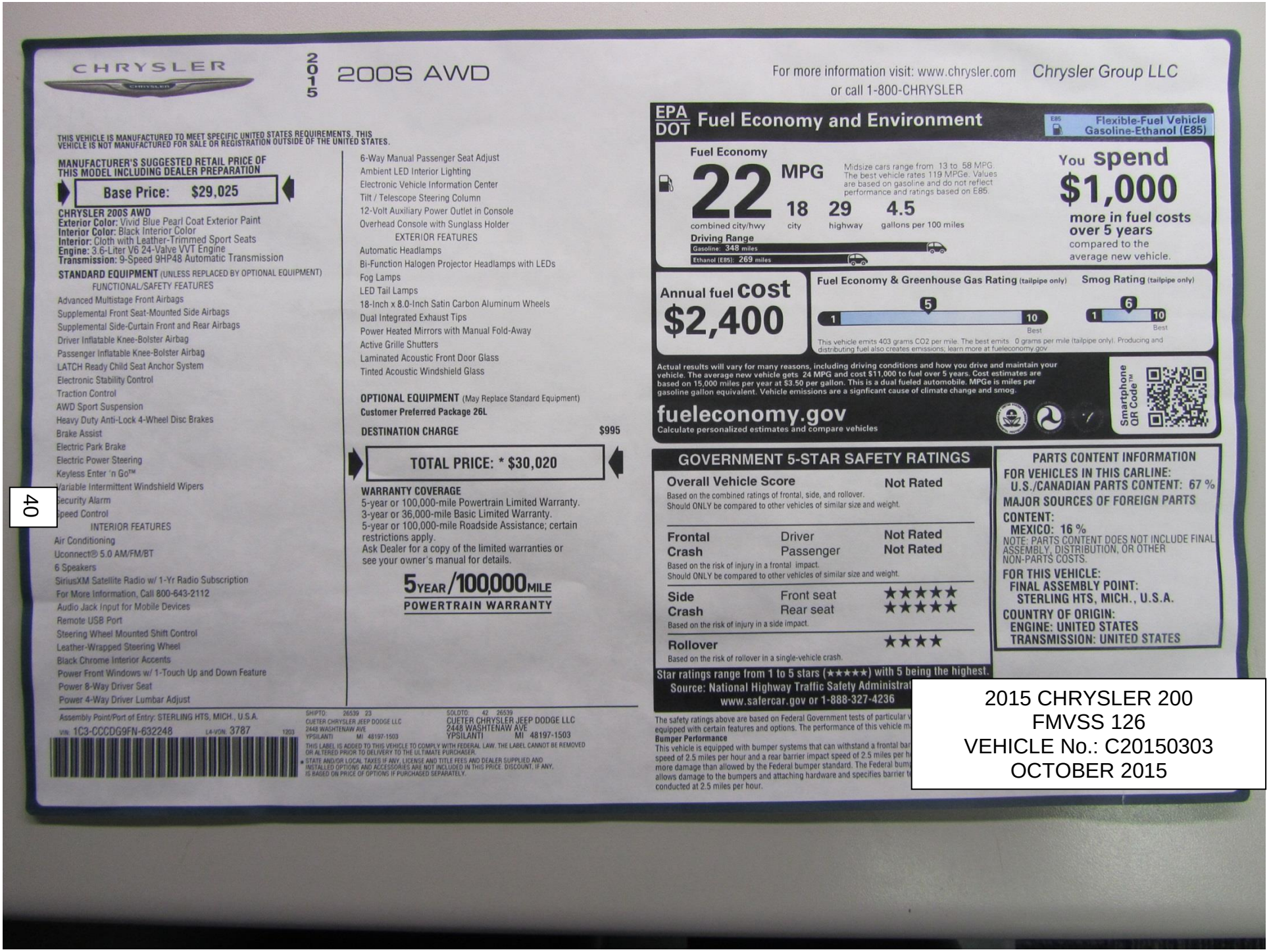
5.4 TIRE AND LOADING INFORMATION LABEL



CHRYSLER

2015 200S AWD

For more information visit: www.chrysler.com
or call 1-800-CHRYSLER

Chrysler Group LLC

THIS VEHICLE IS MANUFACTURED TO MEET SPECIFIC UNITED STATES REQUIREMENTS. THIS VEHICLE IS NOT MANUFACTURED FOR SALE OR REGISTRATION OUTSIDE OF THE UNITED STATES.

MANUFACTURER'S SUGGESTED RETAIL PRICE OF THIS MODEL INCLUDING DEALER PREPARATION

Base Price: $29,025

CHRYSLER 200S AWD
Exterior Color: Vivid Blue Pearl Coat Exterior Paint
Interior Color: Black Interior Color
Interior: Cloth with Leather-Trimmed Sport Seats
Engine: 3.6-Liter V6 24-Valve VVT Engine
Transmission: 9-Speed 9HP48 Automatic Transmission

STANDARD EQUIPMENT (UNLESS REPLACED BY OPTIONAL EQUIPMENT)

FUNCTIONAL/SAFETY FEATURES
Advanced Multistage Front Airbags
Supplemental Front Seat-Mounted Side Airbags
Supplemental Side-Curtain Front and Rear Airbags
Driver Inflatable Knee-Bolster Airbag
Passenger Inflatable Knee-Bolster Airbag
LATCH Ready Child Seat Anchor System
Electronic Stability Control
Traction Control
AWD Sport Suspension
Heavy Duty Anti-Lock 4-Wheel Disc Brakes
Brake Assist
Electric Park Brake
Electric Power Steering
Keyless Enter 'n Go™
Variable Intermittent Windshield Wipers
Security Alarm
Speed Control

INTERIOR FEATURES
Air Conditioning
Uconnect® 5.0 AM/FM/BT
6 Speakers
SiriusXM Satellite Radio w/ 1-Yr Radio Subscription
For More Information, Call 800-643-2112
Audio Jack Input for Mobile Devices
Remote USB Port
Steering Wheel Mounted Shift Control
Leather-Wrapped Steering Wheel
Black Chrome Interior Accents
Power Front Windows w/ 1-Touch Up and Down Feature
Power 8-Way Driver Seat
Power 4-Way Driver Lumbar Adjust
6-Way Manual Passenger Seat Adjust
Ambient LED Interior Lighting
Electronic Vehicle Information Center
Tilt / Telescope Steering Column
12-Volt Auxiliary Power Outlet in Console
Overhead Console with Sunglass Holder

EXTERIOR FEATURES
Automatic Headlamps
Bi-Function Halogen Projector Headlamps with LEDs
Fog Lamps
LED Tail Lamps
18-Inch x 8.0-Inch Satin Carbon Aluminum Wheels
Dual Integrated Exhaust Tips
Power Heated Mirrors with Manual Fold-Away
Active Grille Shutters
Laminated Acoustic Front Door Glass
Tinted Acoustic Windshield Glass

OPTIONAL EQUIPMENT (May Replace Standard Equipment)
Customer Preferred Package 26L

DESTINATION CHARGE $995

TOTAL PRICE: * $30,020

WARRANTY COVERAGE
5-year or 100,000-mile Powertrain Limited Warranty.
3-year or 36,000-mile Basic Limited Warranty.
5-year or 100,000-mile Roadside Assistance; certain restrictions apply.
Ask Dealer for a copy of the limited warranties or see your owner's manual for details.

5 YEAR/100,000 MILE POWERTRAIN WARRANTY

Assembly Point/Port of Entry: STERLING HTS, MICH., U.S.A.

VIN: 1C3-CCCDG9FN-632248 L4-VON: 3787 1203

SHIPTO: 26539 23
CUETER CHRYSLER JEEP DODGE LLC
2448 WASHTENAW AVE
YPSILANTI MI 48197-1503

SOLDTO: 42 26539
CUETER CHRYSLER JEEP DODGE LLC
2448 WASHTENAW AVE
YPSILANTI MI 48197-1503

THIS LABEL IS ADDED TO THIS VEHICLE TO COMPLY WITH FEDERAL LAW. THE LABEL CANNOT BE REMOVED OR ALTERED PRIOR TO DELIVERY TO THE ULTIMATE PURCHASER.

* STATE AND/OR LOCAL TAXES IF ANY, LICENSE AND TITLE FEES AND DEALER SUPPLIED AND INSTALLED OPTIONS AND ACCESSORIES ARE NOT INCLUDED IN THIS PRICE. DISCOUNT, IF ANY, IS BASED ON PRICE OF OPTIONS IF PURCHASED SEPARATELY.

EPA DOT Fuel Economy and Environment

E85 Flexible-Fuel Vehicle Gasoline-Ethanol (E85)

Fuel Economy

22 MPG combined city/hwy

18 city | 29 highway | 4.5 gallons per 100 miles

Midsize cars range from 13 to 58 MPG. The best vehicle rates 119 MPGe. Values are based on gasoline and do not reflect performance and ratings based on E85.

Driving Range
Gasoline: 348 miles
Ethanol (E85): 269 miles

You **spend $1,000** more in fuel costs over 5 years compared to the average new vehicle.

Annual fuel cost $2,400

Fuel Economy & Greenhouse Gas Rating (tailpipe only): 5 (1 to 10, Best)

Smog Rating (tailpipe only): 6 (1 to 10, Best)

This vehicle emits 403 grams CO2 per mile. The best emits 0 grams per mile (tailpipe only). Producing and distributing fuel also creates emissions, learn more at fueleconomy.gov

Actual results will vary for many reasons, including driving conditions and how you drive and maintain your vehicle. The average new vehicle gets 24 MPG and cost $11,000 to fuel over 5 years. Cost estimates are based on 15,000 miles per year at $3.50 per gallon. This is a dual fueled automobile. MPGe is miles per gasoline gallon equivalent. Vehicle emissions are a signficant cause of climate change and smog.

fueleconomy.gov
Calculate personalized estimates and compare vehicles

Smartphone OR Code™

GOVERNMENT 5-STAR SAFETY RATINGS

Overall Vehicle Score Not Rated
Based on the combined ratings of frontal, side, and rollover.
Should ONLY be compared to other vehicles of similar size and weight.

Frontal Crash — Driver: Not Rated; Passenger: Not Rated
Based on the risk of injury in a frontal impact.
Should ONLY be compared to other vehicles of similar size and weight.

Side Crash — Front seat: ★★★★★; Rear seat: ★★★★★
Based on the risk of injury in a side impact.

Rollover ★★★★
Based on the risk of rollover in a single-vehicle crash.

Star ratings range from 1 to 5 stars (★★★★★) with 5 being the highest.
Source: National Highway Traffic Safety Administrat
www.safercar.gov or 1-888-327-4236

The safety ratings above are based on Federal Government tests of particular v
equipped with certain features and options. The performance of this vehicle m

Bumper Performance
This vehicle is equipped with bumper systems that can withstand a frontal bar
speed of 2.5 miles per hour and a rear barrier impact speed of 2.5 miles per h
more damage than allowed by the Federal bumper standard. The Federal bump
allows damage to the bumpers and attaching hardware and specifies barrier t
conducted at 2.5 miles per hour.

PARTS CONTENT INFORMATION
FOR VEHICLES IN THIS CARLINE:
U.S./CANADIAN PARTS CONTENT: 67 %
MAJOR SOURCES OF FOREIGN PARTS CONTENT:
MEXICO: 16 %
NOTE: PARTS CONTENT DOES NOT INCLUDE FINAL ASSEMBLY, DISTRIBUTION, OR OTHER NON-PARTS COSTS.
FOR THIS VEHICLE:
FINAL ASSEMBLY POINT:
STERLING HTS, MICH., U.S.A.
COUNTRY OF ORIGIN:
ENGINE: UNITED STATES
TRANSMISSION: UNITED STATES

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5.5 WINDOW STICKER - MONRONEY LABEL

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5.6 ESC OFF AND ESC MALFUNCTION TELLTALES

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5.7 ESC OFF CONTROL LOCATION

5.8 ESC OFF CONTROL

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5.9 ¾ FRONT VIEW - TEST VEHICLE INSTRUMENTED

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5.10 ¾ REAR VIEW - TEST VEHICLE INSTRUMENTED

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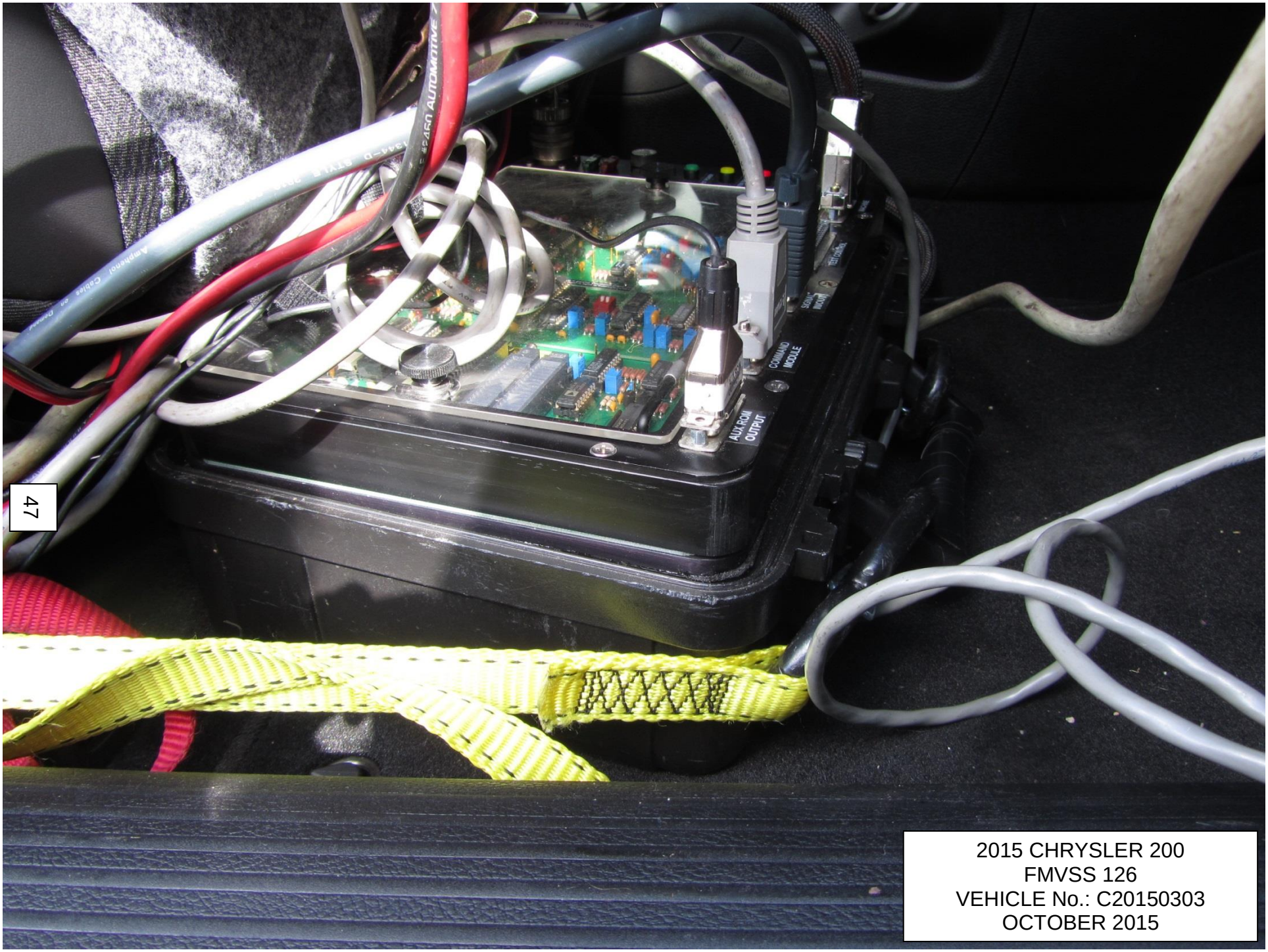
5.11 STEERING WHEEL CONTROLLER AND DATA ACQUISITION SYSTEM



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5.12 STEERING CONTROLLER BATTERY BOX

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5.13 INERTIA MEASUREMENT UNIT

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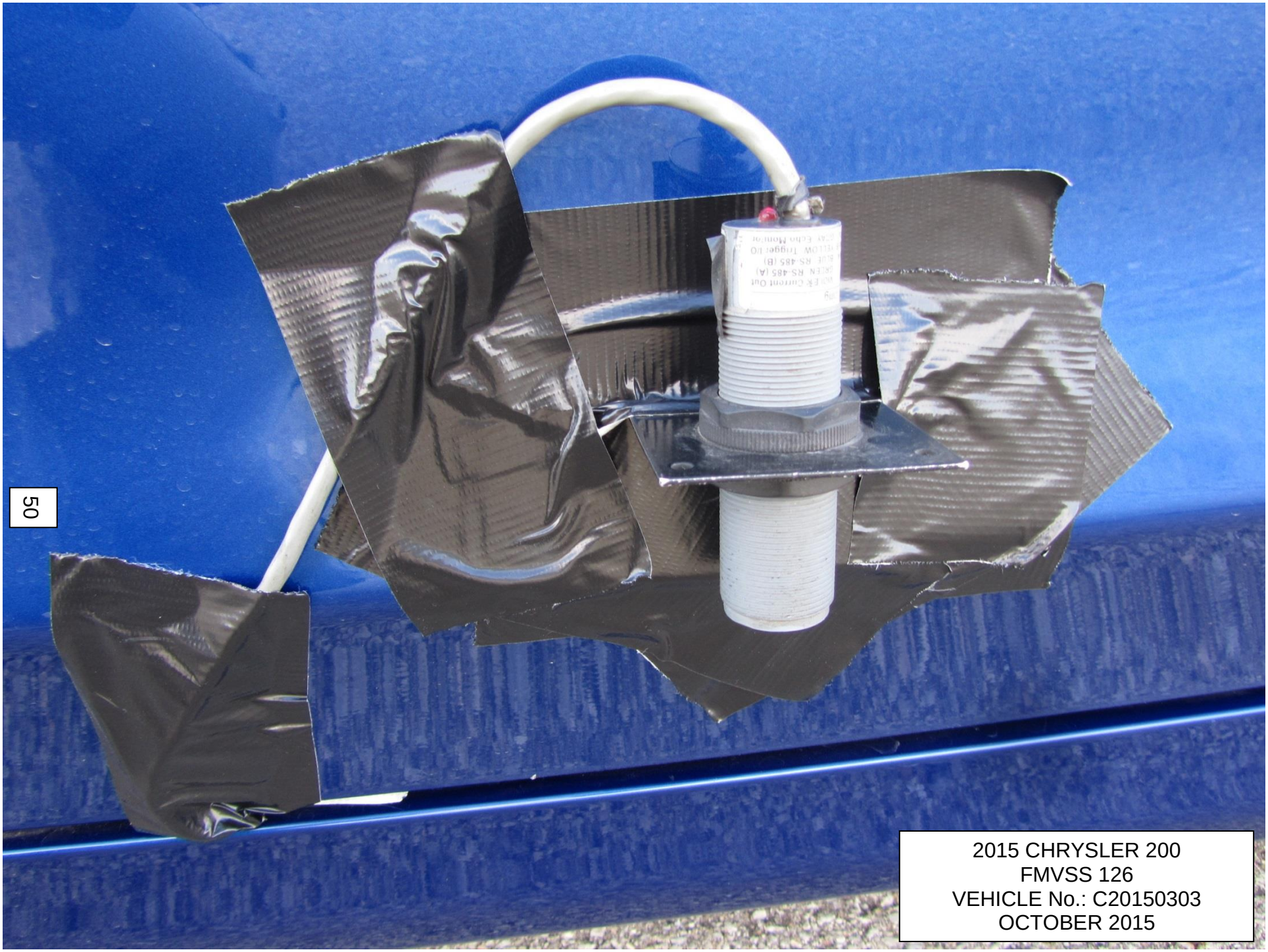
5.14 VEHICLE SPEED SENSOR



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5.15 BODY ROLL SENSOR (DRIVER SIDE)

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OCTOBER 2015

5.16 BODY ROLL SENSOR (PASSENGER SIDE)

5.17 BRAKE PEDAL FORCE TRANSDUCER

6.0 DATA PLOTS

Figure 1. Steering Angle and Yaw Rate Time History, Counter-Clockwise Initial Steer Tests

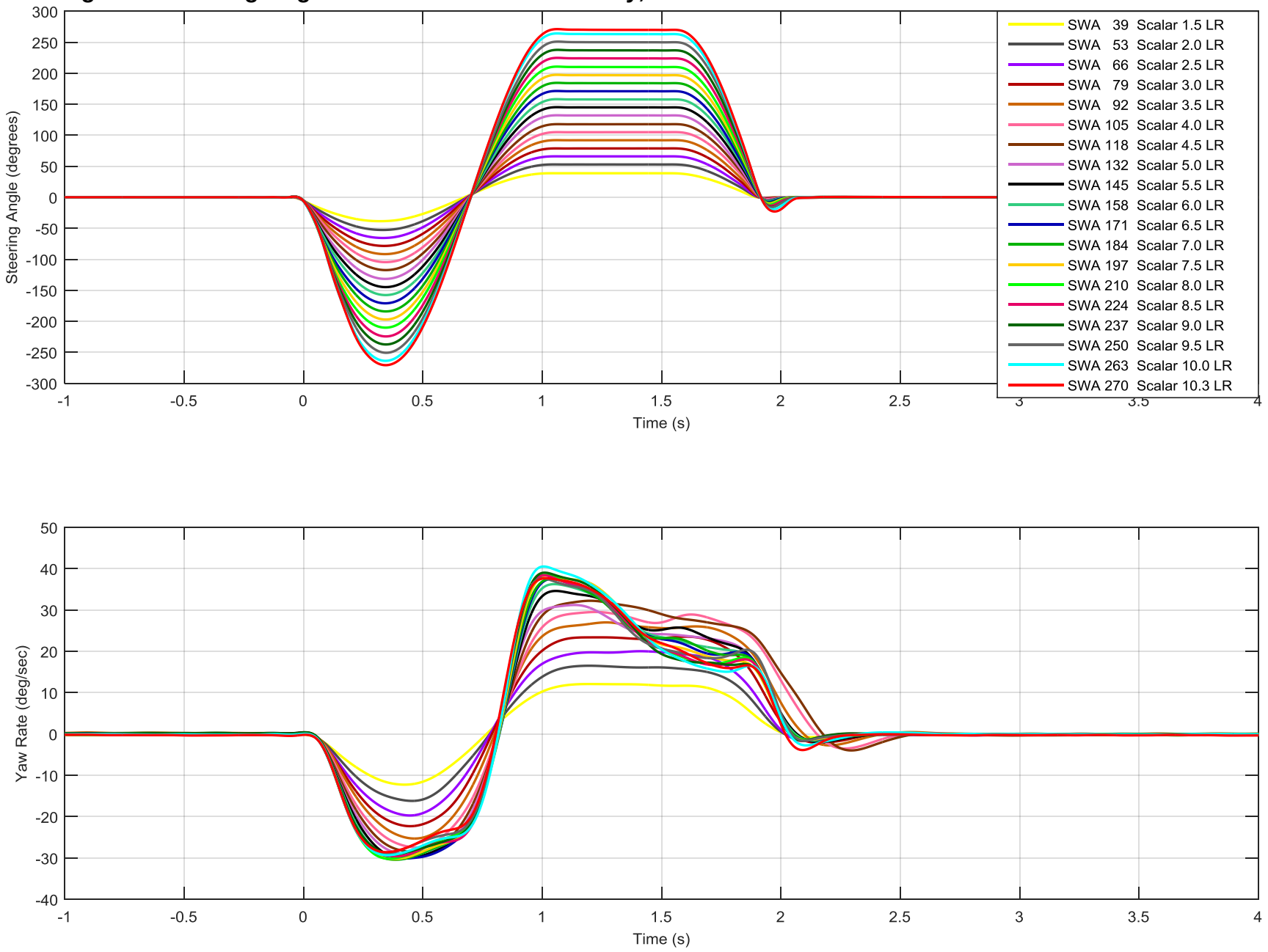
Figure 2. Steering Angle, Lateral Acceleration, and Lateral Displacement Time History, Counter-Clockwise Initial Steer Tests

Figure 3. Steering Angle and Yaw Rate Time History, Clockwise Initial Steer Tests

Figure 4. Steering Angle, Lateral Acceleration, and Lateral Displacement Time History, Clockwise Initial Steer Tests

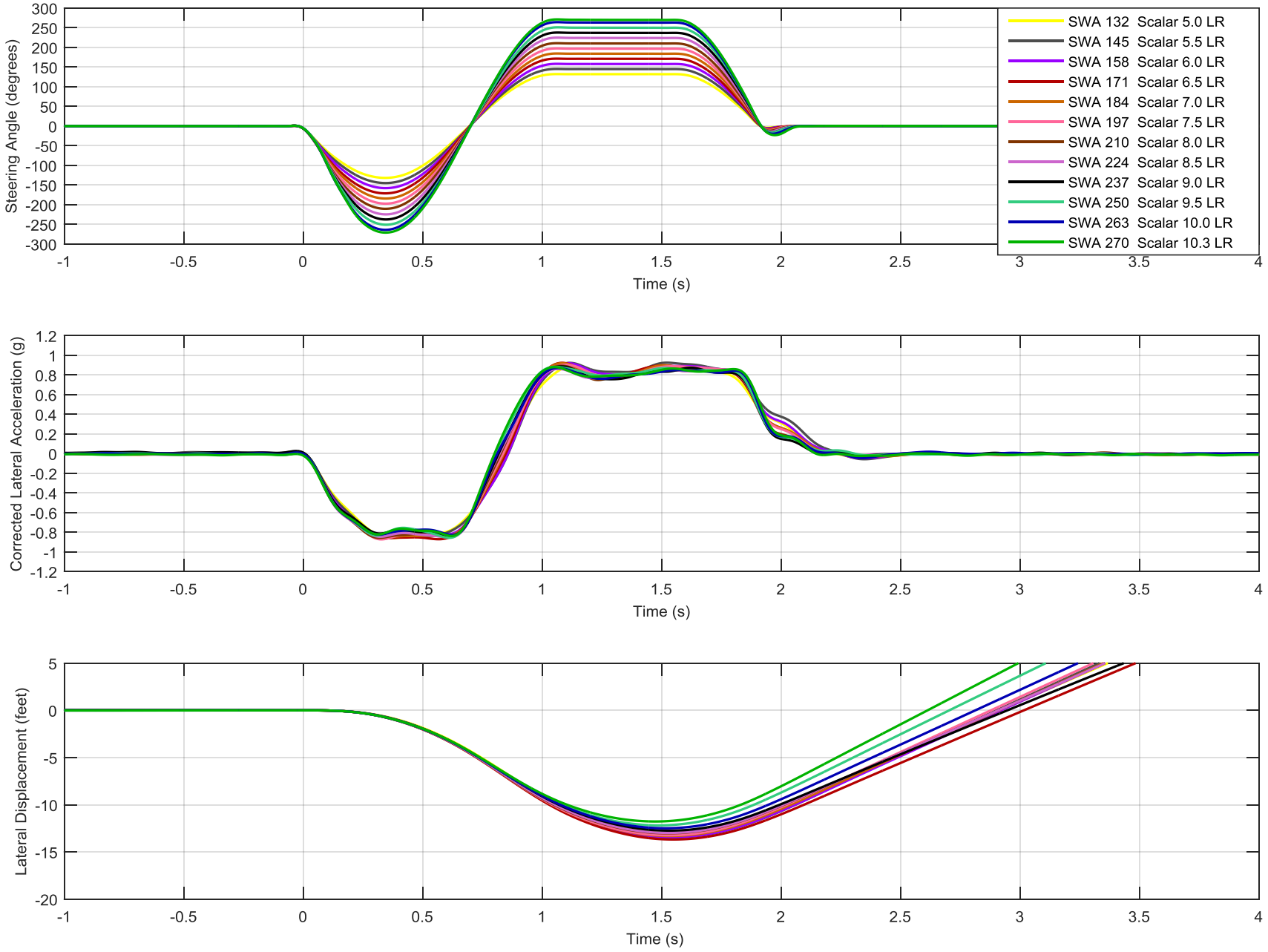
6.0 2015 CHRYSLER 200 DATA PLOTS

Figure 1. Steering Angle and Yaw Rate Time History, Counter-Clockwise Initial Steer Tests



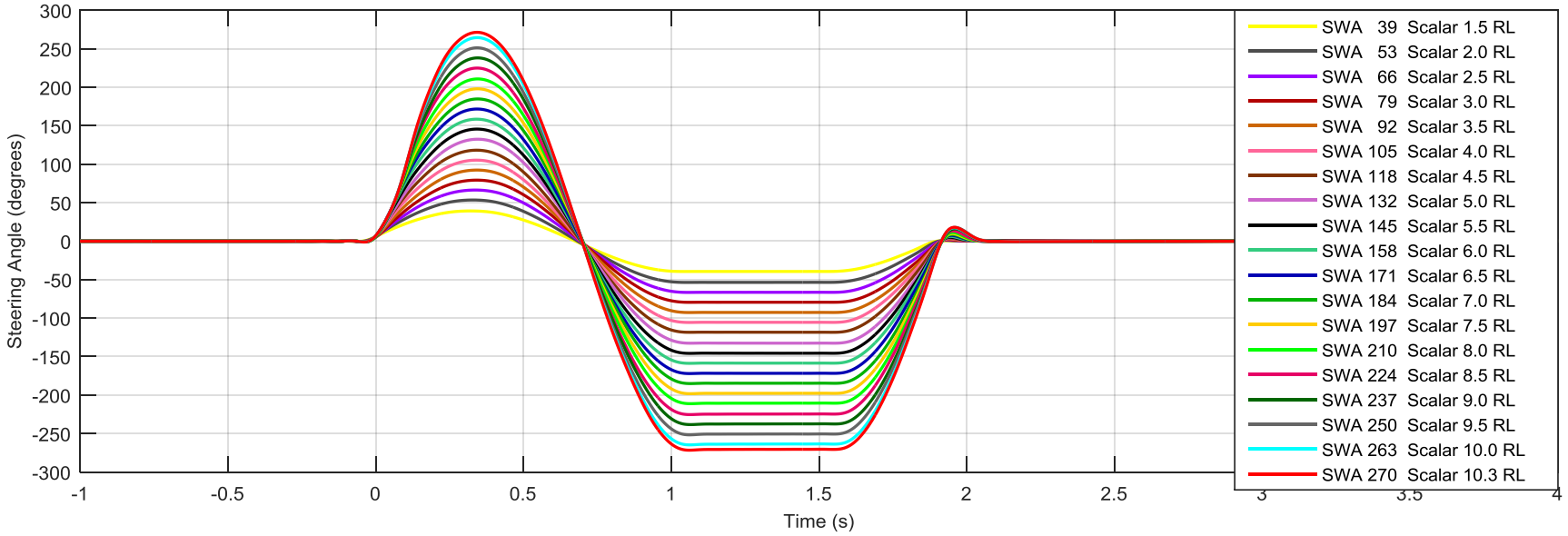
6.0 2015 CHRYSLER 200 DATA PLOTS…continued

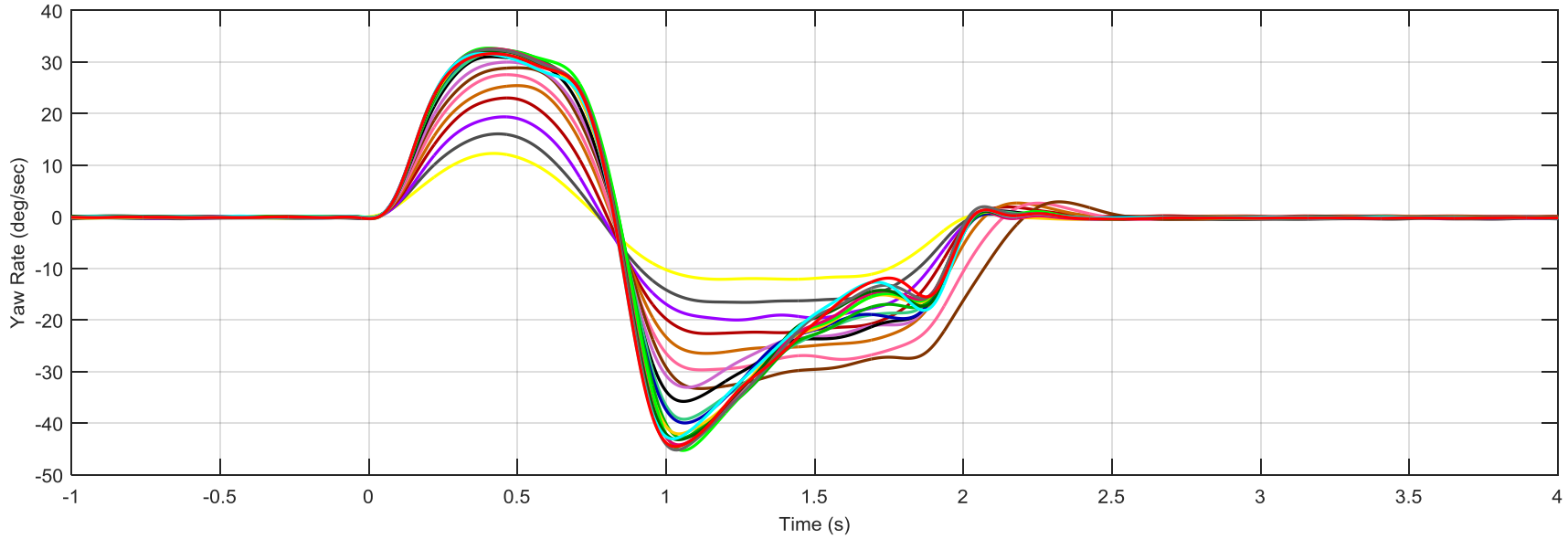
Figure 2. Steering Angle, Lateral Acceleration, and Lateral Displacement Time History, Counter-Clockwise Initial Steer Tests



6.0 2015 CHRYSLER 200 DATA PLOTS…continued

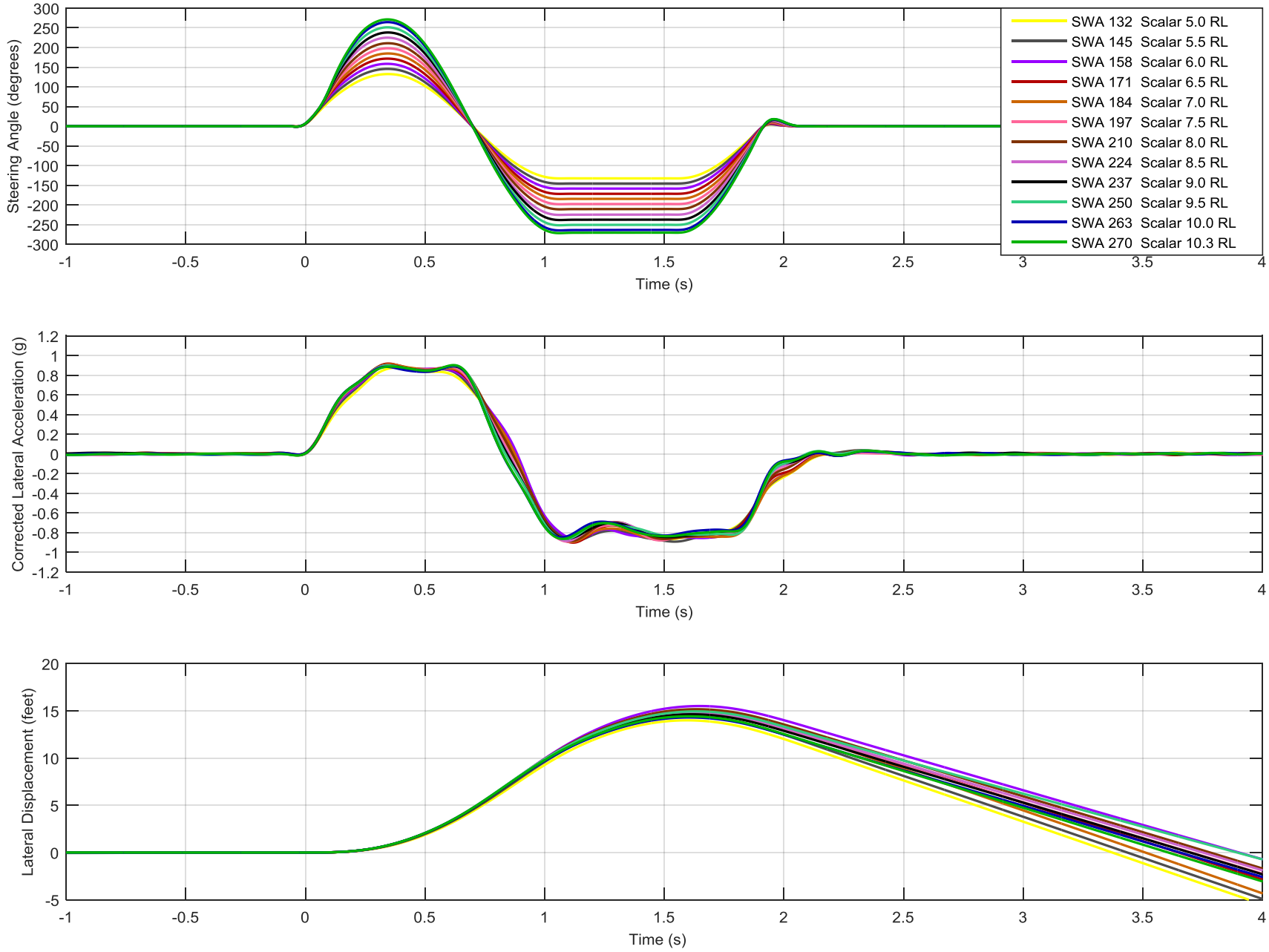
Figure 3. Steering Angle and Yaw Rate Time History, Clockwise Initial Steer Tests





6.0 2015 CHRYSLER 200 DATA PLOTS…continued

Figure 4. Steering Angle, Lateral Acceleration, and Lateral Displacement Time History, Clockwise Initial Steer Tests



7.0 OTHER DOCUMENTATION

7.1 OWNER'S MANUAL PAGES
7.2 VEHICLE ARRIVAL CONDITION REPORT
7.3 VEHICLE COMPLETION CONDITION REPORT
7.4 SINE WITH DWELL TEST RESULTS
7.5 SLOWLY INCREASING STEER TEST RESULTS
7.6 INERTIA SENSOR MEASUREMENTS

7.1 OWNER'S MANUAL PAGES

6. Adaptive Cruise Control (ACC) Distance Setting Display

This will display the distance setting for the ACC system. For further information, refer to "Adaptive Cruise Control (ACC)" in "Understanding The Features Of Your Vehicle."

7. Seat Belt Reminder Light

When the ignition switch is first turned to the ON/RUN position, this light will turn on for four to eight seconds as a bulb check. During the bulb check, if the driver's seat belt is unbuckled, a chime will sound. After the bulb check or when driving, if the driver or front passenger seat belt remains unbuckled, the Seat Belt Indicator Light will flash or remain on continuously. Refer to "Occupant Restraints" in "Things To Know Before Starting Your Vehicle" for further information.

8. Turn Signal Indicators

The arrows will flash with the exterior turn signals when the turn signal lever is operated. A tone will chime, and an EVIC/DID message will appear if either turn signal is left on for more than 1 mile (1.6 km).

NOTE: If either indicator flashes at a rapid rate, check for a defective outside light bulb.

9. Electronic Stability Control (ESC)

The "ESC Activation/Malfunction Indicator Light" in the instrument cluster will come on when the ignition switch is turned to the ON/RUN position. It should go out with the engine running. If the "ESC Activation/Malfunction Indicator Light" comes on continuously with the engine running, a malfunction has been detected in the ESC system. If this light remains on after several ignition

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cycles, and the vehicle has been driven several miles (kilometers) at speeds greater than 30 mph (48 km/h), see your authorized dealer as soon as possible to have the problem diagnosed and corrected.

NOTE:

- The "ESC Off Indicator Light" and the "ESC Activation/Malfunction Indicator Light" come on momentarily each time the ignition switch is turned to ON/RUN.
- Each time the ignition is turned to ON/RUN, the ESC system will be ON, even if it was turned off previously.
- The ESC system will make buzzing or clicking sounds when it is active. This is normal; the sounds will stop when ESC becomes inactive following the maneuver that caused the ESC activation.

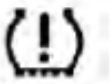
10. Air Bag Warning Light

This light will turn on for four to eight seconds as a bulb check when the ignition switch is first turned to the ON/RUN position. If the light is either not on during starting, stays on, or turns on while driving, have the system inspected at an authorized dealer as soon as possible. Refer to "Occupant Restraints" in "Things To Know Before Starting Your Vehicle" for further information.

11. Electronic Stability Control (ESC) Off

This light indicates the Electronic Stability Control (ESC) is off.

12. Tire Pressure Monitoring



Each tire, including the spare (if provided), should be checked monthly when cold and inflated to the inflation pressure recommended

Electronic Stability Control (ESC)

This system enhances directional control and stability of the vehicle under various driving conditions. ESC corrects for over/under steering of the vehicle by applying the brake of the appropriate wheel to assist in counteracting the over/under steer condition. Engine power may also be reduced to help the vehicle maintain the desired path. ESC uses sensors in the vehicle to determine the vehicle path intended by the driver and compares it to the actual path of the vehicle. When the actual path does not match the intended path, ESC applies the brake of the appropriate wheel to assist in counteracting the oversteer or understeer condition.

- Oversteer - when the vehicle is turning more than appropriate for the steering wheel position.
- Understeer - when the vehicle is turning less than appropriate for the steering wheel position.

WARNING!

Electronic Stability Control (ESC) cannot prevent the natural laws of physics from acting on the vehicle, nor can it increase the traction afforded by prevailing road conditions. ESC cannot prevent accidents, including those resulting from excessive speed in turns, driving on very slippery surfaces, or hydroplaning. ESC also cannot prevent accidents resulting from loss of vehicle control due to inappropriate driver input for the conditions. Only a safe, attentive, and skillful driver can prevent accidents. The capabilities of an ESC equipped vehicle must never be exploited in a reckless or dangerous manner which could jeopardize the user's safety or the safety of others.

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ESC Operating Modes

The ESC system has two available operating modes:

Full On

This is the normal operating mode for ESC. Whenever the vehicle is started the ESC system will be in this mode. This mode should be used for almost all driving situations. ESC should only be turned to "Partial Off" for specific reasons as noted below.

Partial Off

This mode is entered by momentarily pressing the "ESC Off" switch (located in the lower switch bank above the heater/air conditioning controls) or by shifting to "S" (if equipped). When in "Partial Off" mode, the TCS portion of ESC, except for the limited slip feature described in the TCS section, has been disabled and the "ESC OFF Indicator Light" will be illuminated. All other stability features of ESC function normally, with the exception of engine power reduction. This mode is intended to be used if the vehicle is in deep snow, sand, or gravel conditions and more wheel spin than ESC would normally allow is required to gain traction.

To turn ESC on again, momentarily press the "ESC Off" switch or by shifting out of "S" (if equipped). This will restore the normal "ESC On" mode of operation.

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ESC Off Switch

To turn ESC on again, momentarily press the "ESC Off" switch. This will restore the normal "ESC On" mode of operation.

WARNING!

When in "Partial Off" mode, the TCS functionality of ESC (except for the limited slip feature described in the TCS section) has been disabled and the "ESC Off Indicator Light" will be illuminated. When in "Partial Off" mode, the engine power reduction of TCS is disabled, and the enhanced vehicle stability offered by the ESC system is reduced.

NOTE: To improve the vehicle's traction when driving with snow chains, or starting off in deep snow, sand or gravel, it may be desirable to switch to the "Partial Off" mode by pressing the "ESC Off" switch. Once the situation requiring ESC to be switched to the "Partial Off" mode is overcome, turn ESC on again by momentarily pressing the "ESC Off" switch. This may be done while the vehicle is in motion.

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7.1 OWNER'S MANUAL PAGES

Hill Start Assist (HSA)

The HSA system is designed to assist the driver when starting a vehicle from a stop on a hill. HSA will maintain the level of brake pressure the driver applied for a short period of time after the driver takes their foot off of the brake pedal. If the driver does not apply the throttle during this short period of time, the system will release brake pressure and the vehicle will roll down the hill. The system will release brake pressure in proportion to the amount of throttle applied as the vehicle starts to move in the intended direction of travel.

HSA Activation Criteria

The following criteria must be met in order for HSA to activate:

- Vehicle must be stopped.
- Vehicle must be on a 6% (approximate) grade or greater hill.
- Gear selection matches vehicle uphill direction (i.e., vehicle facing uphill is in forward gear; vehicle backing uphill is in REVERSE gear).

HSA will work in REVERSE and all forward gears when the activation criteria have been met. The system will not activate if the vehicle is placed in NEUTRAL or PARK.

WARNING!

There may be situations on minor hills with a loaded vehicle, or while pulling a trailer, when the system will not activate and slight rolling may occur. This could cause a collision with another vehicle or object. Always remember the driver is responsible for braking the vehicle.

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HSA Off

If you wish to turn off the HSA system, it can be done in the Uconnect® settings. Refer to "Uconnect® Settings" in "Understanding Your Instrument Panel" for further information.

Ready Alert Braking

Ready Alert Braking may reduce the time required to reach full braking during emergency braking situations. It anticipates when an emergency braking situation may occur by monitoring how fast the throttle is released by the driver. When the throttle is released very quickly, Ready Alert Braking applies a small amount of brake pressure. This brake pressure will not be noticed by the driver. The brake system uses this brake pressure to allow a fast brake response if the driver applies the brakes.

Rain Brake Support

Rain Brake Support may improve braking performance in wet conditions. It will periodically apply a small amount of brake pressure to remove any water buildup on the front brake rotors. It only functions when the windshield wipers are in the LO or HI mode, it does not function in the intermittent mode. When Rain Brake Support is active, there is no notification to the driver and no driver interaction is required.

ESC Activation/Malfunction Indicator Light And ESC OFF Indicator Light

The "ESC Activation/Malfunction Indicator Light" in the instrument cluster will come on when the ignition switch is cycled to the ON position. It should go out with the engine running. If the "ESC Activation/Malfunction Indicator Light" comes on continuously with the engine running, a

7.2 VEHICLE ARRIVAL CONDITION REPORT

CONTRACT NO. DTNH22-11-D-00247 DATE: 9-18-15

FROM: Automotive Allies

TO: TRC Inc.

PURPOSE: (X) Initial Receipt ( ) Received via Transfer ( ) Present vehicle condition

MODEL YEAR/MAKE/MODEL/BODY STYLE: 2015 / Chrysler / 200 / Sedan

MANUFACTURE DATE: 12-14 NHTSA NO.: C20150303

BODY COLOR: Blue VIN: 1C3CCCDG9FN632248

ODOMETER READING: 44 miles GVWR: 2,241 KG

PURCHASE PRICE: $ rented / leased DEALER'S NAME: Automotive Allies, 209 W. Alameda Avenue, Suite 101, Burbank, CA 91502

X ALL OPTIONS LISTED ON "WINDOW STICKER" ARE PRESENT ON THE TEST VEHICLE

X TIRES AND WHEEL RIMS ARE NEW AND THE SAME AS LISTED

X THERE ARE NO DENTS OR OTHER INTERIOR OR EXTERIOR FLAWS

X THE VEHICLE HAS BEEN PROPERLY PREPARED AND IS IN RUNNING CONDITION

X THE GLOVE BOX CONTAINS AN OWNER'S MANUAL, WARRANTY DOCUMENT, CONSUMER INFORMATION, AND EXTRA SET OF KEYS

X PROPER FUEL FILLER CAP IS SUPPLIED ON THE TEST VEHICLE

X PLACE VEHICLE IN STORAGE AREA

X INSPECT THE VEHICLE'S INTERIOR AND EXTERIOR, INCLUDING ALL WINDOWS, SEATS, DOORS, ETC., TO CONFIRM THAT EACH SYSTEM IS COMPLETE AND FUNCTIONAL PER THE MANUFACTURER'S SPECIFICATIONS. ANY DAMAGE, MISADJUSTMENT, OR OTHER UNUSUAL CONDITION THAT COULD INFLUENCE THE TEST PROGRAM OR TEST RESULTS SHALL BE RECORDED. REPORT ANY ABNORMAL CONDITION TO THE NHTSA COTR BEFORE BEGINNING ANY TEST

RECORDED BY: Jason Church DATE: 11-16-15

APPROVED BY: Jeff Sankey DATE: 11-16-15

7.3 VEHICLE COMPLETION CONDITION REPORT

CONTRACT NO. DTNH22-11-D-00247 DATE: 11-13-15

MODEL YEAR/MAKE/MODEL/BODY STYLE: 2015 / Chrysler / 200 / Sedan

MANUFACTURE DATE: 12-14 NHTSA NO.: C20150303

BODY COLOR: Blue VIN: 1C3CCCDG9FN632248

ODOMETER READING: 647 miles GVWR: 2,241 KG

LIST OF FMVSS TESTS PERFORMED BY THIS LAB: 126, 135

X THERE ARE NO DENTS OR OTHER INTERIOR OR EXTERIOR FLAWS

X THE VEHICLE HAS BEEN PROPERLY MAINTAINED AND IS IN RUNNING CONDITION

X THE GLOVE BOX CONTAINS AN OWNER'S MANUAL, WARRANTY DOCUMENT, CONSUMER INFORMATION, AND EXTRA SET OF KEYS

X PROPER FUEL FILLER CAP IS SUPPLIED ON THE TEST VEHICLE

REMARKS:

Equipment that is no longer on the test vehicle as noted on Vehicle Arrival Condition Report:

None.

Explanation for equipment removal:

N/A

Test Vehicle Condition:

Like new.

RECORDED BY: Jason Church DATE: 11-16-15

APPROVED BY: Jeff Sankey DATE: 11-16-15

7.4 SINE WITH DWELL TEST RESULTS
2015 Chrysler 200
NHTSA No.: C20150303

Date Created 16-Oct-15

LEFT-TO-RIGHT (INITIAL COUNTER-CLOCKWISE STEER)

File	SWA @ 5deg Ct	MES	Time@5deg	COS	Time@COS	MOS	Time@MOS	YRR1(%)	YR1 (deg/sec)	YRR1 Ct	YRR175(%)	YR175 (deg/sec)
0015	620	50.813	0.095	1000	1.997	756	0.775	0.069	0.008	1200	0.174	0.021
0016	618	50.579	0.088	1000	1.996	756	0.775	-0.618	-0.103	1200	-0.004	-0.001
0017	618	50.438	0.086	1000	1.997	756	0.777	-0.561	-0.111	1200	-0.393	-0.078
0018	617	50.406	0.082	999	1.995	756	0.776	-0.564	-0.132	1199	-0.414	-0.097
0019	616	50.377	0.078	999	1.992	755	0.774	-0.778	-0.208	1199	-0.847	-0.226
0020	615	50.525	0.075	999	1.991	755	0.772	-0.019	-0.006	1199	0.086	0.025
0021	615	50.477	0.074	999	1.990	755	0.772	-0.536	-0.174	1199	-0.217	-0.070
0022	616	50.405	0.076	999	1.993	755	0.775	-0.330	-0.103	1199	-0.277	-0.086
0023	615	50.321	0.072	998	1.989	755	0.772	-0.740	-0.255	1198	-0.533	-0.184
0024	615	50.716	0.073	999	1.990	755	0.773	0.113	0.041	1199	-0.273	-0.099
0025	615	50.466	0.071	998	1.989	755	0.772	-0.430	-0.162	1198	-0.569	-0.214
0026	615	50.287	0.074	999	1.991	755	0.774	-0.031	-0.012	1199	-0.420	-0.158
0027	615	50.525	0.073	999	1.990	755	0.774	-0.032	-0.012	1199	-0.235	-0.091
0028	615	50.556	0.072	998	1.990	755	0.773	0.200	0.077	1198	0.072	0.028
0029	615	50.266	0.073	999	1.991	755	0.774	0.311	0.120	1199	-0.014	-0.005
0030	614	50.527	0.069	998	1.987	755	0.771	-0.481	-0.187	1198	-0.634	-0.246
0031	614	50.345	0.070	998	1.988	755	0.771	-0.079	-0.030	1198	-0.122	-0.046
0032	615	50.518	0.071	998	1.990	755	0.774	0.220	0.089	1198	0.009	0.004
0033	615	50.448	0.072	999	1.991	755	0.775	0.114	0.043	1199	0.141	0.053

RIGHT-TO-LEFT (INITIAL CLOCKWISE STEER)

0034	620	50.380	0.095	1000	1.997	756	0.776	0.075	-0.009	1200	0.418	-0.050
0035	618	50.455	0.085	999	1.994	755	0.773	1.526	-0.249	1199	0.808	-0.132
0036	617	50.250	0.084	1000	1.995	756	0.776	-0.060	0.012	1200	0.012	-0.002
0037	616	50.367	0.080	999	1.993	755	0.774	-0.558	0.126	1199	-0.571	0.129
0038	616	50.718	0.078	999	1.993	755	0.774	-0.286	0.076	1199	-0.272	0.072
0039	616	50.334	0.076	999	1.991	755	0.773	0.271	-0.080	1199	0.248	-0.073
0040	616	50.432	0.075	999	1.992	755	0.774	0.170	-0.056	1199	0.435	-0.145
0041	615	50.724	0.073	999	1.992	755	0.773	0.165	-0.054	1199	0.165	-0.055
0042	615	50.419	0.071	998	1.989	755	0.771	0.196	-0.070	1198	0.364	-0.130
0043	615	50.473	0.070	998	1.989	755	0.771	0.372	-0.145	1198	-0.047	0.018
0044	615	50.503	0.071	998	1.990	755	0.772	0.294	-0.118	1198	0.481	-0.192
0045	615	50.399	0.073	999	1.992	755	0.775	0.218	-0.093	1199	0.134	-0.057
0046	615	50.207	0.073	999	1.991	755	0.775	0.067	-0.028	1199	-0.052	0.022
0047	615	50.480	0.073	999	1.991	755	0.775	0.532	-0.241	1199	0.443	-0.201
0048	615	50.525	0.070	998	1.989	755	0.773	0.259	-0.114	1198	0.449	-0.199
0049	615	50.556	0.072	999	1.991	756	0.775	0.417	-0.180	1199	0.445	-0.192
0050	615	50.412	0.070	998	1.989	755	0.773	0.157	-0.071	1198	0.209	-0.094
0051	615	50.443	0.071	998	1.989	755	0.774	0.296	-0.128	1198	0.339	-0.146
0052	615	50.812	0.070	998	1.989	755	0.773	0.315	-0.140	1198	0.394	-0.175

7.4 SINE WITH DWELL TEST RESULTS
2015 Chrysler 200
NHTSA No.: C20150303

Date Created 16-Oct-15

LEFT-TO-RIGHT (INITIAL COUNTER-CLOCKWISE STEER)

File	YRR175 Ct	2nd Yaw Peak(deg/sec)	2nd Yaw Peak Ct	Lat Disp (ft)	Lat. Acc. 1.07s (g)	1st SWA Peak(deg)	1st SWA Peak Ct	2nd SWA Mean(deg)
0015	1350	12.227	859	-4.130	0.403	38.663	684	38.642
0016	1350	16.645	857	-5.452	0.526	52.800	684	52.843
0017	1350	19.813	860	-6.664	0.622	65.723	685	65.885
0018	1349	23.350	865	-7.532	0.704	78.528	685	78.690
0019	1349	26.746	870	-8.506	0.746	91.728	684	91.953
0020	1349	29.657	860	-9.182	0.808	104.629	684	104.932
0021	1349	32.402	855	-9.630	0.849	117.474	684	117.761
0022	1349	31.215	843	-9.964	0.837	131.707	684	131.960
0023	1348	34.459	826	-10.292	0.879	144.909	684	144.951
0024	1349	36.284	825	-10.317	0.896	157.747	684	157.764
0025	1348	37.635	824	-10.502	0.919	171.049	683	170.987
0026	1349	37.680	822	-10.362	0.920	184.122	684	183.997
0027	1349	38.500	820	-10.333	0.899	197.182	684	196.799
0028	1348	38.572	818	-10.225	0.893	210.321	684	210.005
0029	1349	38.536	817	-10.169	0.866	224.463	684	223.967
0030	1348	38.841	816	-9.997	0.875	237.398	683	236.918
0031	1348	37.778	814	-9.864	0.882	250.822	683	250.022
0032	1348	40.630	816	-9.889	0.872	263.833	684	263.089
0033	1349	37.955	818	-9.625	0.886	270.841	684	269.941

RIGHT-TO-LEFT (INITIAL CLOCKWISE STEER)

0034	1350	-12.067	856	4.148	-0.393	39.327	684	39.330
0035	1349	-16.292	871	5.536	-0.514	53.527	684	53.493
0036	1350	-19.807	864	6.646	-0.592	66.440	684	66.446
0037	1349	-22.656	844	7.711	-0.667	79.300	684	79.389
0038	1349	-26.452	843	8.638	-0.707	92.382	684	92.587
0039	1349	-29.588	840	9.354	-0.752	105.280	684	105.432
0040	1349	-33.223	839	9.824	-0.780	118.222	684	118.318
0041	1349	-33.017	829	10.280	-0.809	132.463	684	132.532
0042	1348	-35.778	827	10.604	-0.824	145.641	684	145.621
0043	1348	-39.064	827	11.004	-0.794	158.501	683	158.480
0044	1348	-40.000	828	10.907	-0.852	171.691	684	171.705
0045	1349	-42.759	826	10.893	-0.862	184.765	684	184.612
0046	1349	-41.899	824	10.913	-0.871	197.963	684	197.702
0047	1349	-45.350	826	10.956	-0.859	210.782	684	210.543
0048	1348	-44.216	823	10.831	-0.868	224.918	684	224.647
0049	1349	-43.233	823	10.754	-0.851	238.118	684	237.489
0050	1348	-45.063	822	10.868	-0.849	251.227	684	250.602
0051	1348	-43.042	820	10.634	-0.847	264.486	684	263.634
0052	1348	-44.461	821	10.721	-0.860	271.337	684	270.495

7.5 SLOWLY INCREASING STEER TEST RESULTS
2015 Chrysler 200
NHTSA No.: C20150303

Date Created 16-Oct-15

File	Vehicle	EventPt	DOS	MES [mph]	Mean SPD [mph]	AYcount_3	THETAENCF_3 [degree]	AYCG_CD2_3 [g]	r_squared	ZeroBegin	ZeroEnd
0007	2015 Chrysler 200	706	1	49.777	50.298	1093	-26.194	-0.299	0.992	506	706
0009	2015 Chrysler 200	705	1	50.041	50.094	1095	-26.391	-0.296	0.996	505	705
0010	2015 Chrysler 200	706	1	49.947	49.985	1098	-26.523	-0.306	0.997	506	706
0011	2015 Chrysler 200	703	0	49.729	49.724	1091	26.452	0.301	0.997	503	703
0012	2015 Chrysler 200	703	0	49.954	49.740	1087	26.215	0.299	0.999	503	703
0013	2015 Chrysler 200	703	0	49.834	50.226	1087	26.181	0.305	0.998	503	703
	Averages						26.3	0.301			

Scalars	Steering Angles (deg)
1.5	39
2.0	53
2.5	66
3.0	79
3.5	92
4.0	105
4.5	118
5.0	132
5.5	145
6.0	158
6.5	171
7.0	184
7.5	197
8.0	210
8.5	224
9.0	237
9.5	250
10.0	263
10.3	270

7.6 INERTIA SENSOR MEASUREMENTS
2015 Chrysler 200
NHTSA No.: C20150303

Device : U12-05-08-07108
device version : 2.25
device certification date : 10/06/15
today is : 10/12/2015
units : Millimeters

Label	ActualX	ActualY	ActualZ
C_DEVICEPOS001			
M_PLANE001	983.7583	-424.988	-312.074
M_LINE001	697.0298	59.1733	7.8099
M_FRT_AXLE_CENTER	0	0	0
C_COORDSYS001	0	0	0
M_TIRE_TREAD_CENTER	254.7831	77.2487	-216.609
M_INERTIA_PACK	1650.378	869.5762	590.9972
M_ROOF	1735.925	824.8498	1175.042
M_GROUND	1735.999	-177.596	-310.573
M_REAR_AXLE_CENTER	2740.163	3.5568	7.6015
Track Width		1588	
Roof Height (relative to ground)			1485.615
Motion Pak - x-distance (mm)	1650.378		
Motion Pak - y-distance (mm)		-1.423	
Motion Pak - z-distance (mm)			812.671
Motion Pak - x-distance (inches)	64.975		
Motion Pak - y-distance (inches)		-0.056	
Motion Pak - z-distance (inches)			31.995

x-distance (longitudinal)	Point of reference is the front axle centerline. (Positive from front axle toward rear of vehicle.)
y-distance (lateral)	Point of reference is the vehicle centerline. (Positive from the center toward the right.)
z-distance (vertical)	Point of reference is the ground plane. (Positive from the ground up.)